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Virtual narratives : a study of relationships between narrative and interactive media, with special reference to interactive television

Virtual Narratives:

a Study of Relationships between Narrative and Interactive Media, with Special Reference to Interactive Television

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Abstract

This thesis investigates the operations of narrative within a defined area of interactive media. Interactive media enable readers/viewers to become interactors who can intervene in a discourse in order to control or change it in accordance with their own decisions: they can choose from alternatives, establish links between previously unconnected material, and create new content, often in communication with other interactors across geographically dispersed locations. These media provide a challenging new environment for narrative, since interactors are able, through their interventions, to disrupt conventions traditionally associated with narrative.

The tensions that arise between narrative and interactivity are explored in the thesis through investigations of theory and practice. Theoretical discussions of the issue have taken up a variety of positions, from the view that narrative is a controlling structure for interactivity, to associations of interactivity and poststructuralist 'writerliness', and postmodern readings of the new media in terms of 'depthlessness' and the 'hyperreal'.

These approaches are investigated with reference to a practical case study of inhabited TV, a variant of interactive television that integrated TV and the internet so that audience members could become interactors. Because of the difficulties that arose from this attempt to combine interactivity with a television broadcast, the production team devised a strategy by means of which the interactors' contributions were controlled by closely-structured narratives. However, this strategy was not successful, but led to further difficulties. It is proposed that these difficulties arose because the producers adopted restrictive, structural understandings of narrative, and that more satisfactory outcomes would have developed from an alternative approach, in which narrative is understood to be 'decentred' within an aesthetic that foregrounds interactivity (Darley 2000). It is argued that the original proposals for inhabited TV described a form of 'decentred' narrative, and that the successful development of the medium would require a return to this initial concept and the deployment of this distinctive new form of narrative.

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I would like to thank the members of the production teams involved in developing the various stages of inhabited TV, who generously made themselves available for interviews about the project, provided copies of recordings, correspondence and unpublished notes, and enabled me to join them during development and production of *Out of This World*. Especial thanks are due to John Wyver, Claire-Janine Brazier, Rena Butterwick and Jules Watkins from Illuminations TV; Graham Walker and Jason Morphett from British Telecom; and Steve Benford and Chris Greenhalgh from the Department of Computer Science, Nottingham University.

Author's Declaration

I declare that the work in this dissertation was carried out in accordance with the Regulations of the University of Bristol. The work is original except where indicated by special reference in the text and no part of the dissertation has been submitted for any other degree.

Any views expressed in the dissertation are those of the author and in no way represent those of the University of Bristol.

The dissertation has not been presented to any other University for examination either in the United Kingdom or overseas.

SIGNED: Chris Tuersan

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Chapter 1: Introduction

1.1 Research aims

This thesis investigates the operations of narrative[1] within a defined area of interactive media. Interactive media (IM)[2] enable readers or viewers to become interactors who can intervene in a discourse in order to control or change it in accordance with their own decisions: they can choose from alternatives, establish links between previously unconnected material, take on new identities and perform within virtual worlds, or create new content and share it with other interactors across geographically dispersed locations.

These media provide a challenging new environment for narrative, since interactors' interventions are able to disrupt a set of conventions that has traditionally been associated with narrative. Interactive media need have no certain beginnings, middles or ends; no sure sequences of cause and effect; no predetermined pace; no single authorial voice; a text can be expanded indefinitely as new material is associated with it, incorporated into it, or generated by an interactor. In what ways are the tensions that arise between these narrative conventions and interactivity resolved?

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[1] For discussions of the terms *narrative*, *interactive media*, *interactivity*, and *interactors*, see section 1.2 below.

[2] The term *interactive media* is used in the thesis to denote media forms that are characterised by interactivity. While the term serves to indicate the distinguishing feature that connects these media, it is important to recognise that various forms within the category (for example, computer games, hypertexts, and VR installations) exhibit the operations of interactivity in different ways, and so reference is made throughout the thesis not only to IM in general, but also to specific interactive forms.

This question is explored in the thesis through investigations of theory and a practical case study. Theoretical approaches to relationships between interactivity and narrative have taken up a variety of positions. According to one view (Laurel 1991; Murray 1997), narrative should be understood as a set of formal features through which interactive media can be given shape and coherence; according to another (Bolter 1990; Landow 1992; Lanham 1993), interactive media can be associated with the post-structuralist writerly text; and according to another (Poster 1995; Turkle 1996; Darley 2000), they can be understood to exemplify the postmodern.

Discussions of these approaches are developed with reference to a series of experiments in 'inhabited TV' (Wyver 1996; Walker 1997), a variant of interactive television (iTV) - that is, forms of television that enable two-way communications between broadcasters and audiences, allowing viewers to exercise control over programme content. Inhabited TV combined television and the internet so that a TV programme could be broadcast from within an on-line site; its producers believed that this hybrid would create a more genuinely interactive form than was developed in other kinds of interactive TV by allowing viewers to become interactors whose on-line contributions could be integrated into TV narratives.

The concept of inhabited TV was tested in a series of practical productions in the late 1990s and early 2000s by a group of researchers: a television production company (Illuminations TV); broadcasters (the BBC, Channel Four and BSkyB); and technologists (British Telecom and Nottingham University's Department of Computer Science). The material for the case study was generated when I joined this production team as a participant observer: I was given this valuable access because of my experience as a TV producer. The experiment that I observed was *Out of This World*, which was developed for the *International Symposium on Electronic Arts* (ISEA) in Manchester in September 1998.

Participant observation of *Out of This World* is contextualised in the thesis through close analyses of the preceding inhabited TV projects - *The Mirror* (January - February 1997) and *Heaven and Hell - Live* (August 1997). Members of the production team from Illuminations TV generously made themselves available for interviews about these projects, and gave me copies of recordings and unpublished notes (including team e-mails) that were invaluable in providing perspectives on the early development of inhabited TV. Conversations with team members from British Telecom and Nottingham University's Department of Computer Science, who developed the technical infrastructure for the projects, were an important source of perspectives on the projects' technical developments, and have been incorporated, where appropriate, into the thesis.

There are several reasons for the thesis's focus on inhabited TV. In the first place, the key issue that was explored in the experiments was the development of new narrative functions within an interactive medium, so that the project provides a valuable opportunity to examine in practice the tensions that arose from an attempt to incorporate narrative and interactivity. Furthermore, the producers' interest in content development distinguishes the inhabited TV project from many other practical experiments with new kinds of communication technologies, which foreground issues of hardware, software and technical infrastructures: the project therefore provides an important counterbalance to the technological emphasis that is evident elsewhere.

Critical writing about interactive media, too, has often been characterised by a 'technocratic discourse' (Preston 2001, 225) which has focused on the means and processes of communication - technologies, economics and social aspects of the new media - rather than on issues of aesthetics and content forms (Jenkins 1999). Studies of interactive television, in particular, have been dominated by questions about the economic potential of new media (Willis 1994; Blackall and Giles 1996; Thompson 1997), so that the paucity of studies of new kinds of content is especially pronounced in relation to iTV. By considering the emergence of narratives within a form of iTV,

the research therefore augments an area of theory which has been relatively neglected in the past.

The focus on inhabited TV counters another limitation in critical writing. Discussions of new media have often slipped from accounts of the current state of technology to hypothetical (and hyperbolic) descriptions of media forms that might possibly evolve (Dovey 1996; Markley 1996; Preston 2001), and close analysis of the practical experiments enables the thesis to avoid this tendency to hypothesis.

A further reason for the thesis's focus on the experiments in inhabited TV is that, by concentrating on a specific example of practice, it is possible to mitigate the diversity and mutability of the field. Interactive media do not constitute an homogeneous or stable body of work, but are slippery and inchoate, diversifying and evolving in response to rapid technological changes. This characteristic gives rise to a significant problem for critical writing, for it often occurs that as soon as an example of practice has been described and explored, it becomes obsolete as it is overtaken by new technical developments and creative forms.

An example indicates the pace and scale of change. In the early part of 1994, a small but significant innovation took place on TV: the e-mail address of a programme was, for the first time, broadcast as part of the on-screen credits, and, to the producer's astonishment, elicited an

unprecedented response from the audience.[3] At the time, e-mails were a relatively novel form of communication: since then, however, on-line communications have developed exponentially, so that it is now conventional for programmes to have e-mail addresses, web-sites and chat-rooms, and for material delivered via the internet and TV to be mutually complementary.[4] Changes of this scale present significant difficulties for the analysis of interactive media during the period, and by concentrating on one defined form, the thesis is able to develop a focused approach within a field that is diverse, mutable and often transitory.

In these ways, the thesis's concentration on inhabited TV can be seen to bring a number of important benefits. However, it can also appear to induce a problem. The experiments belong to a specific period of the late 1990s and early 2000s, a period during which the field of interactive media was subject to rapid and dramatic changes: they appear, therefore, to be of historical, rather than current, significance. Yet this historical position does not diminish the importance of analysing the projects. In the same way that extant descriptions of the emergence of film at the turn of the nineteenth century are of great value to contemporary students, so records of the embryonic stages of interactive media are of enduring worth

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[3] The programme was *The Net* (January-March 1997 11.30-11.55 pm BBC2).
[4] 'Enhanced TV'. as this multi-media approach to content provision has been termed, is described in section 1.3.

(Manovich 2001); consequently, it is important to document forms such as inhabited TV in order to record a stage - however transitory - in the evolution of new media.

The continuing validity of analysing inhabited TV can be justified for another reason. As the failure of many iTV projects has demonstrated, there are still many unresolved questions about content creation in forms that combine interactivity and TV; by engaging centrally with this question, the inhabited TV experiments gave rise to insights that are valuable for the ongoing struggle to create successful iTV content, and they therefore have an enduring currency.

The thesis's focus on practical experiments in inhabited TV can, therefore, be seen to be valid for a number of reasons. It foregrounds the development of new content forms; it mitigates the mutability and diversity of an embryonic field; it counters a tendency to hypothesis within IM theory; and it enables the development of wider perspectives on an emergent medium.

This section has established the thesis's aims and approach, and given reasons for the focus of its case study. The next section mobilises the investigations of relationships between narrative and interactivity by discussing the terms *narrative*, *interactivity*, and related terms.

1.2 Discussion of key terms

1.2.1 Narrative

Narrative is a difficult and elusive term that has been subject to a variety of approaches, from structuralist to post-structuralist and postmodern, and discussions of its operations within interactive media draw variously on these approaches.

Structuralist approaches to narrative are referred to in the thesis as *narratology*. This term is used in two ways in critical writing - both to refer to the entire body of theoretical work that explores narrative (Bal 1985; Prince 1987; Genette 1988) or, in a more precise way, to denote structuralist-led approaches to narrative: i.e. approaches which seek to identify what all (and only) narratives have in common, and to produce a comprehensive and universal narrative 'grammar' (Todorov 1990; Gibson 1996; McQuillan 2000). Since the term was introduced to describe a scientific methodology (an '-ology') that would enable narrative structures to be rigorously investigated (Todorov 1990), *narratology* is used in the thesis to denote structuralist analyses of narrative, while *narrative theory* is used to refer to the whole body of theory that explores narratives.

Narratologists answer the question 'What is a narrative?' by asserting that a set of identifiable features underpins all narratives. The fundamental feature is *structure*: in Barthes's words, 'either a narrative is merely a

rambling collection of events, in which case nothing can be said about it other than by referring back to the storyteller's (the author's) art, talent, or genius, [...] or else it shares with other narratives a common structure which is open to analysis' (Barthes 1977a, 81).

This understanding arises from structuralist descriptions of language as a set of rules underpinning all speech-articulations. Since language produces narratives, it must be a metasystem for it:

> Structurally, narrative shares the characteristics of the sentence without ever being reducible to the simple sum of its sentences: a narrative is a long sentence, just as every constative sentence is in a way the rough outline of a short narrative (Barthes 1977a, 84).

It follows from this that narratives possess form: in the same way that a sentence must be grammatical if it is to make sense (i.e. its components must relate to one another in certain conventional ways), so a narrative, too, must proceed in accordance with regular patterns if it is to be meaningful: in other words, it is possible to uncover 'a narrative grammar' (Greimas 1982, 794) that explains why, under their extraordinary variability of detail, narratives demonstrate remarkable consistencies in their overall shape.

Drawing on the connection that they make between narrative and language, narratologists identify a second fundamental feature. Narrative emerges through a process of *communication*, and therefore depends upon a speaker (or author), and listeners (or readers)

(Chatman 1978, 28). Narratives are therefore characterised by reciprocal relationships between authors and readers:

> The narrative, viewed as a subject, is the basis of communication: there is a giver of narrative and a recipient of narrative. In linguistic communication, I and you are presupposed by each other; similarly, a narrative cannot take place without a narrator and a listener (or reader) (Barthes 1977a, 260).

In narratology, the dominant partner within this relationship is understood to be the author, and *authorship* is seen as the prime source of order, originality and aestheticism in a text, 'the essence of narrative art' (Scholes and Kellogg 1966, 240). Because of authorship, a narrative can be planned and controlled; its content can be economical and contained, coherent and meaningful within a whole. Authorial control therefore distinguishes a narrative from the rest of the world, or 'the real', for while a narrative 'must necessarily be made by someone', the real is not subject to organisation: 'one of the characteristics of the world is that it is uttered by no-one' (Metz 1974, 18).

Narratologists build on this identification of the author as narrative's primary source by distinguishing between the author (or producer of a narrative) and the implied author and narrator (Booth 1983; Chatman 1978, 1990; Rimmon-Kenan 1983). The implied author is the author's 'second self' or persona, as reconstructed from the text:

> he stands behind the scenes, whether as stage-manager, as puppeteer, or as an indifferent God, silently paring his fingernails. This implied author is always distinct from the 'real man' [...] who creates a superior version of himself, a 'second self', as he creates his work (Booth 1983, 150).

The narrator is the individual who narrates within the text: he is 'the speaker of a literary work [who] cannot be identified with the author' (Chatman 1978, 147).

The distinction between narrative and non-narrative is made by identifying *events*, or 'things that happen' (Rimmon-Kenan 1983, 2) as the substance of what is communicated in narratives. For example, there are no events in the following lines, so that they can be identified as non-narrative:

> Roses are red
> Violets are blue
> Sugar is sweet
> And so are you.

This descriptive lyric can be contrasted with the following lines:

> There was a young lady of Niger
> Who smiled as she rode on a tiger.
> They returned from the ride with the lady inside
> And the smile on the face of the tiger

This is definably a narrative, for the ride, the meal and the return are all events (Rimmon-Kenan 1983, 1).

Events are combined into sequences, and sequences into a narrative, through *causality*; they are brought together in ways that are not simply linear, but causative, 'radically correlative, enchaining, entailing' (Chatman 1978, 45). For Branigan (1992), causality is the key feature of narrative: creating time and place in a narrative is not as important as constructing a possible logic for events to occur, so that 'if I were

forced to use one word to characterise a narrative, that word would be causality' (216).

In contrast, for Chatman (1990), *temporality* is the defining narrative characteristic. He points out that time informs narrative texts in a way it does not inform paintings or other non-narrative forms, so that 'the reader or spectator who skips pages or fast-forwards the videotape or goes out for a smoke during the second act must somehow learn, by enquiry or inference, what has transpired in the interim' (8). Narrative's movement through time entails the additional principle of causality, so that narrative can be defined as 'events in a chain of temporal causality' (9).

Narrative is further distinguished by a particular kind of temporality: a *double* temporal organisation that institutes a gap between the events reported by a narrative (the story) and the way in which they are expressed (the discourse) (Chatman 1978).[5] These terms refer to the *what* and the *how* of narrative: 'What is communicated is story, the formal content element of a narrative: it is communicated by discourse, the formal expression element' (Chatman 1978, 31). At the level of story, events are understood as occurring in a strict chronological

[5] The Russian Formalists made an analogous distinction between the organisation of events and the organisation of their telling, differentiating between *fabula* and *syuzhet*. *Fabula* is the equivalent of 'story': that is, the immanent structure of a narrative which pre-exists expression. The *syuzhet* is equivalent to 'discourse'; it articulates the *fabula* and represents it in an aesthetically satisfying form (Chatman 1978, 19).

sequence, while at the level of discourse, they may be presented in a way which complicates their progression.

For Metz (1974), narrative is essentially defined by this double temporal organisation - 'the time of the thing told and the time of the telling' - since the ability to invent one time scheme in terms of another separates narrative from simple description (which creates space in time), as well as from the image (which creates space in another space) (18). It gives rise, moreover, to one of narrative's most notable characteristics, making possible the temporal distortions that are commonplace in narrative (for example, three years of a hero's life summarised in two sentences of a novel, or in a short film montage). Through the creation of alternative discourse versions of a story, a great variety of effects can be created, using a whole repertoire of devices. Time can be stretched, re-ordered, or elided; there may be flashbacks, flashforwards or ellipses; different strands of the story can be interwoven or told consecutively; the discourse may start *in media res* or keep to careful chronology. These techniques allow pattern, pace and suspense to be developed, and give the story-world an aesthetically pleasing or a revealing shape: they thereby provide an author with one of narrative's most powerful tools for holding an audience's attention.

Temporal organisation gives rise to another key narrative feature - *closure*. For Todorov (1990), closure 'ties up' a narrative, bringing it full circle to the situation that existed at the outset. A narrative is set in motion by some reversal or disruption to an initial situation - for example, a stranger arrives in a community, someone dies, or a child comes of age. The narrative develops as the change is realised, and ends only when there is a return to the harmony of the opening scenario. Todorov schematises this cycle into a five-part series:

1. A state of equilibrium at the outset
2. The disruption of the equilibrium by some action
3. A recognition that there has been a disruption
4. An attempt to repair the disruption
5. A reinstatement of the initial equilibrium (29).

According to this reading, the ending is not merely sequential, but *con*sequential. Closure does not only exist in the final moments of a narrative, but arises out of the themes and patterns that have developed throughout its length: in Branigan's words, 'there is reversibility in that the ending situation can be traced back to the beginning; or, to put it another way, the ending is seemingly entailed by the beginning' (1992, 20).

Some narratologists use these narrative features - temporality, causality, and closure - as a kind of 'checklist' against which utterances can be tested to see if they are definably narrative. Prince, for example, examines the following sentence: 'He was rich, then he lost lots of money, then as a result, he was poor' (1973, 31). He argues that it can, indeed, be defined as

narrative, since it possesses the three principles of narrative organisation - temporal succession ('then .... then ....'), causality ('as a result ....'), and closure ('he was poor').

Narratologists argue that these kinds of approaches benefit from consistency and clarity: yet this very precision has caused the methodology to be subjected to intense critical scrutiny. The proscriptive, 'scientific' analyses of narratology have been censured because they limit the identification of narrative to a specific form - 'classical' narrative - and exclude all unorthodox forms that deviate from this norm. They have been challenged, moreover, because their systematic models are achieved by taking a narrative out of its historical context and studying it in isolation, so that the reader's subjectivity is overlooked. Narratology has therefore been condemned as 'hair-raisingly unhistorical':

> Having characterised the underlying ground-rules of a literary text, all the structuralist could do was sit back and wonder what to do next. There was no question of relating the work to the realities of which it treated, or to the conditions which produced it, or to the actual readers who studied it, since the founding gesture of structuralism had been to bracket off such realities [...] It is rather like killing off a person in order to examine more conveniently the circulation of the blood (Eagleton 1983, 109).

These shortcomings are addressed in post-structuralist readings of narrative, which emphasise the role of the reader in the production of narrative meanings. In these approaches, narrative is understood to be open to its readers and the circumstances of its reading: meaning is no longer controlled by the author, but negotiated and provisional (Barthes 1974, 1977b; Foucault 1984). No longer is narrative seen as a finished product, but as a process that is endlessly meaningful: the closed work is

superseded by the open text, without edges, ends or beginnings. This is the ideal text - open, networked and dynamic:

> The networks are many and interact, without any of them being able to surpass the rest; this text is a galaxy of signifiers, not a structure of signifieds; it has no beginning; it is reversible; we gain access to it by several entrances, none of which can be authoritatively declared to be the main one; the codes it mobilises extend *as far as the eye can reach*, they are indeterminable (Barthes 1974, 5-6; emphasis in original).

The change in approach is seen most clearly in the work of Barthes. In *An Introduction to the Structuralist Analysis of Narratives* (1966, trans. 1977) he draws up a manifesto for narratology; writing later, in *S/Z*, (1970, trans. 1974) he proclaims a radically new way of understanding narratives - one which sees them not as a form, but as a process. He argues now that narrative is not dependent on structure, but on interpretation: that the audience is not to be conceived as an undifferentiated mass of passive recipients, but as individual and active producers of meaning. We should distinguish, he argues (1974), between the readerly text (in which the reader 'is left with no more than the poor freedom to accept or to reject the text: reading is nothing more than a referendum') and the writerly one (which gives the reader access to the pleasures of 'writing' and meaning-making, challenging the coherence of the world, and so challenging the reader as well).

While post-structuralist approaches allow the reader's role in creating meanings to be considered and address the negotiated, provisional nature of narrative, postmodern approaches emphasise narrative's heterogeneity and dynamism. For Lyotard (1984), the

postmodern can be described as an 'incredulity' towards metanarratives - that is, narratives which stress logics of instrumentality and progress. He advocates a return to 'little narratives' of premodern society: narratives which validate difference, elevate the 'unpresentable', and escape the overbearing logic of instrumentality that derives from the metanarrative of progress. These 'little' narratives are characterised by a number of features. They legitimate difference, decentralisation and multiplicity; they contain many different forms of knowledge; they are transmitted by senders to listeners who are possible senders; they construct a non-linear temporality that foreshortens the past and the present, rendering each repetition of the story concurrent; and most importantly, they authorise everyone as narrator.

Gibson (1996) suggests that postmodern approaches enable narrative to escape from narratology's 'fantasy of geometry' (3), according to which it is defined as 'a unitary, homogenous space, determined by and organised within a given set of constants' (8). He develops a postmodern theory of narrative by drawing on Derrida's (1978) concept of 'energetics', which addresses the changeability and dynamism of narrative. Derrida argues that the quality of narrative does not reside in *form* - in 'regulation and schematisation' (18); but in *force* - 'that which surpasses schemes and understanding' (25). While narratology attempts to pin narrative down, Derrida's approach acknowledges its fluidity and energy:

> The force of the work is precisely that which resists geometrical metaphorisation and is the proper object of literary criticism. [It is] a certain pure and infinite equivocality which gives significant meaning no respite, no rest, but engages it in its own economy so that it always signifies again and differs (Derrida 1978, 20; 25, cited by Gibson 1996, 33).

This understanding of narrative as 'force' addresses aspects of narrative - its dynamism, mutability and diversity - that most firmly resist narratological analysis, so that it appears to be particularly valuable for describing new forms of narrative that are emerging within various kinds of interactive media (Gibson 1996, 12). However, Ryan (1999) challenges Gibson, arguing that postmodern approaches that focus on narrative's fluidity and energy (its 'force') must be accompanied by the recognition of certain narrative boundaries and conventions (narrative 'form'); it is essential to recognise both aspects, Ryan argues, for in narrative, as in the physical world, a force can only be apprehended in its interaction with form - 'we don't see the wind itself, we only see its effect on objects' (137). Nevertheless, any attempt to schematise and universalise aspects of narrative form should be avoided. What is called for is not an inventory of features that enables narrative to be 'pinned down', and that can 'frame the entire text and reduce it to uniformity' (138): rather, narrative features should be understood to arise in various ways and to various degrees, and used as helpful starting-points that enable different kinds of narrative discourse to be compared and contrasted.

Herman (1999) proposes that more inclusive approaches to narrative such as the one suggested by Ryan should be rooted in practice: not only should narrative analysis draw on a range of perceptions, so that the diversity and dynamism of narrative discourse can be addressed, but careful attention should also be paid to analyses of actual practical examples. By these means, an 'enriched narrative theory' (15) is able to address developing directions in practice, so that narrative theory is enabled to keep pace with the subject of its study.

The value of this methodology for the thesis lies in its ability to address the diversity and dynamism of narrative, and thereby to allow the exploratory approaches to narrative development that were proposed for inhabited TV to be discussed; at the same time, it ensures that the practical experiments established to test these proposals are rigorously investigated. Through interconnected discussions of theory and practice, therefore, practice can be illuminated by theory, while theoretical analyses are anchored in the realities of media production.

1.2.2 Interactivity

The thesis uses the term *interactive media* (IM) to refer to electronic works which accept and use inputs from readers/viewers via a range of devices such as joysticks, key-pads, virtual reality sensors, and touch-screens. The readers/viewers who participate by means of these devices are called *interactors*.

The thesis uses the term *interactivity* to refer to mechanisms which enable a reader/viewer (an 'interactor') to control access to an electronic work, to influence its outcomes, and to change the discourse in ways which are readable: within this context, interaction means the ability to intervene within a representation, *not* the ability to read it differently.

Interactive media theory (IM theory) is used to refer to the body of critical work that has grown up around the subject.

A variety of alternative synonyms are elsewhere used to refer to these media: they are called, for example, *digital media, multimedia, computer-mediated communications, hypertexts, hypermedia, cyberspace and cybertexts*. The terms *interactive media, interactive media theory,* and *interactive television* are, however, preferred within the thesis on grounds of consistency.

Interactive television (iTV) and *inhabited TV* (Wyver 1996; Walker 1997) are seen as subsets of interactive media. Following Jensen (1996), *interactive TV* is understood to refer to TV programmes or systems that support two-way communications, giving viewers the possibility of choosing from a range of programme services, controlling their content in various ways, and giving direct input or feedback to a programme. These activities may be achieved through a two-way interactive TV system, or another medium may act to carry the viewers' responses: this 'backchannel' has, in the past, been provided by the telephone, but it is increasingly provided by computers with modems. Types of iTV content that have been established or tested include pay-per-view (PPV), near-video-on-demand (NVOD), video-on-demand (VOD), be-your-own-editor, electronic programme guides (EPGs), home-shopping, home-banking, interactive advertising, distant education and health services, and interactive games.

The producers of *inhabited TV* claimed that it was distinguished from other forms of interactive TV because it offered a more 'genuine' kind of interactivity, allowing viewers to become interactors who could generate content and perform within on-line virtual worlds (Wyver 1996).[6] The activities that took place in the on-line worlds were broadcast, so that the audience's/interactors' contributions could be watched by viewers 'at home' on domestic television sets.

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[6] See chapter 3 for a detailed description of inhabited TV.

Clarifying the terms interactive, interactivity and interaction is complicated by a number of factors. Firstly, they are vague, having been attached to a wide range of forms,[7] so that 'the word 'interactive' operates textually rather than analytically, as it connotes various vague ideas of computer screens, user freedom and personalised media, while denoting nothing' (Aarseth 1997, 48). Secondly, they are unstable, since the media forms to which they are attached are subject to constant development and mutation, and are often transitory. At the present state of development, the term *interactive media* is used to refer to a wide range of media, both *off-line* - dominated by CD-ROMs, which deliver forms including computer games and educational or instructional programmes; and *on-line* - delivered via the internet,[8] which supports a diversity of forms, including MUDs,[9] MMORPGs,[10] three-dimensional virtual worlds (also called *communal virtual environments*, or CVEs),[11] chatrooms,[12] e-mail,[13] hypertext documents,[14] search engines,[15] and games.[16]

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[7] These forms include (among many others) video recorders, videotext, telephone-based voice response systems, automatic tellers, on-line services, information kiosks, computers, multimedia, the internet and intranets (Jensen 1999, 161).

[8] For histories of the internet, see Winston 1998, chapter 18; Naughton 1999; Bell 2001, 11-14.

[9] MUDs (Multi User Domains or Dungeons) are textual descriptions of fantastic worlds which enable participants to communicate with one another, and to create new 'objects' that others can interact with: they are 'open-ended fantasy worlds that role player can not only explore but help build by creating new objects and rooms' (Rheingold 1993, 49).

[10] MMORPGs (Massively Multiplayer Roleplaying Games) are persistent on-line worlds in which thousands of players take part.

[11] These are three dimensional 'meeting rooms' which are accessible through the internet. Interactors enter simple virtual sets as avatars - that is, imaginary graphic realisations of their identities - so that they can interact with one another. *Heaven and Hell - Live* and *Out of This World* incorporated this form.

[12] Chatrooms are virtual on-line sites that allow participants to exchange typed, textual messages in real-time: their messages appear simultaneously on all logged-on users' screens.

Each of these categories can be subdivided into a number of variants. For example, computer games can be subdivided into groups according to shared themes. Simple games based on defending one side of the screen and penetrating an adversary's (e.g. *Pong, Street Fighter* and *Mortal Kombat)* can be described as 'duel' games: games that involve players exploring a simulated world, undertaking tasks in a search for something (e.g. *Zelda* and *Myst)* can be described as 'quest' games: and games that involve players in a series of battles in order to defend or re-establish the status quo of the game-world (e.g. *Super Mario, Doom,* and *Civilisation)* can be described as 'apocalypse' games (Rushkoff 1997, 173).

The third complicating factor in clarifying the terms interactive, interactivity, and interaction is that they are given a variety of meanings within different academic disciplines: they are multi-discursive, depending on the context for their meaning to become clear (O'Sullivan 1994, 190).

Jensen (1999, 165-9) addresses the last of these difficulties by tracing alternative usages of the term interaction in sociology,

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[13] Electronic mail: a system for sending text messages to a specified address over the internet.
[14] Hypertext documents contain links to other documents that allow a reader to jump from one text to another in a non-sequential ('non-linear') way.
[15] Search engines compile databases of web information by using electronic 'spiders' which roam the internet, cataloguing its content.
[16] Outline histories of computer games are given in Haddon 1988; Bell 2001, 44-48; Livingstone 2002, 43-46.

communications studies, and informatics. In sociology, the term is used to refer to reciprocal relationships that arise between two or more people:[17] it is understood to occur when two or more people mutually adapt their behaviour and actions to one another in a given situation, and to be 'a basic constituent of society' (Duncan 1989, 326). In communications studies, interaction is often used to describe the activities that take place between receivers and media texts in the production of meaning, so that it can be seen to be synonymous with *interpretation* (Iser 1980);[18] the term is also used in this discipline to refer to interpersonal communications associated with the use of media (McQuail 1987). In informatics, interaction is used to refer to the processes that take place when humans operate machines: the term is associated here with computers that accept a user's input while a programme is running, in contrast with older, 'batch' computers which only process preloaded data, and thereby has connotations of improved, 'modern' technologies (Aarseth 1997, 48).

A number of attempts have been made to unify and clarify usage of interaction, interactivity and interactive in order to facilitate discussions of different types of interactive media. Jensen (1999, 169) separates these attempts into three groups according to whether they define the

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[17] 'Interaction occurs as soon as the actions of two or more individuals are observed to be mutually independent' (Duncan 1989; cited Jensen 1999, 165).

[18] Iser (1980, 160), for example, writes that 'central to every work is the interaction between its structure and its recipient': 'if the virtual position of the work is between the text and the reader, its actualisation is clearly the result of an interaction between the two'.

terms by drawing together typical examples (*prototypical definitions*); by listing characteristics that must be fulfilled (*criteria-based definitions*); or by identifying qualities which are present to variable degrees in different forms of IM, and inter-relating them by positioning them along a scale (*continuum-based definitions*). Only the last, he suggests, can account for the diversity and dynamism of interactive media by offering sufficiently flexible models.

Prototypical definitions (typologies which draw together various kinds of IM in order to typify the term interactive) are limited because they fail to identify which traits qualify a given medium as interactive, and what aspects connect the interactive media which are listed. So, for example, Durlak's (1987) *Typology for Interactive Media*, which explicates the term by listing as examples 'the telephone; two-way TV; audio conferencing systems; computers used for communication; electronic mail; video-text' (743), does not explain the basis for the list, nor discuss the relationships between its components (Jensen 1999, 169).

McQuail's (2000) typology of IM seems to evade Jensen's censures of protypical definitions of IM, since it draws them into groups according to their different forms of content. McQuail suggests that it is helpful to think in terms of four main categories: *interpersonal communication media* - for example, e-mail; *information search media*

- for example, the use of the internet as a library and data source for information retrieval: *collective participatory media* (that is, the use of the internet for sharing ideas, experiences and developing active, computer-mediated relationships) - for example, chatrooms and 3D virtual rooms; and *interactive play media* - for example, computer based games.

However, this typology, too, is limited because the four categories, while internally coherent, are not situated in relation to one another: in consequence, the typology cannot identify differential degrees of interactivity, nor deal with forms that sit between or across categories (for example, on-line games, which belong in both 3 and 4).

Definitions of IM that specify various characteristic criteria, too, are limited. This may be because the search for criteria that apply across the broad range of media identified as interactive leads to definitions that are unhelpfully general (as example, Jensen (1999, 168) cites the consensual definition 'interactivity is a style of control'). The search for criteria applicable to all forms of IM can lead, too, to definitions that exclude some media that are thought of as interactive. For example, Miller's (1987) definitions of *interactivity* as 'a reciprocal dialog between the user and the system', and *IM* as 'media which involve the viewer as a source of input to determine the content and duration of a message, which permit individualised program material' (cited by

Jensen 1999, 170) exclude more weakly interactive forms such as video-on-demand, since these do not fully comply with the criterion of 'reciprocal dialog between the user and the system'. Moreover, Miller's definition of *interactive* as 'involving the active participation of the user in directing the flow of the computer or video program' unhelpfully ties the definition to a narrow range of technologies - computers and video; the definition thereby lays itself open to obsolescence as technology develops (Jensen 1999, 170).

Newhagen and Rafaeli (1996, 4-13) propose an alternative criteria-based typology of interactivity that seems to avoid the shortcomings that Jensen perceives. They describe IM as *multimedia* (that is, they combine print, sound, still and moving pictures, animation, and so on); *hypertextual* (that is, their texts are non-linear, open and plural, allowing multiple paths that radically disrupt the traditional mass communication model of message flow from sender to receiver); *anarchic* (that is, they are deliberately non-organised and resist the operation of forms of authority such as gate-keepers and preferred paths): and *synchronous* (that is, they support increasingly rapid and distant communication which allows significant time-delays).

However, this typology is limited by its failure to establish that the criteria are variable, so that it is unable to distinguish between various

degrees of interactivity in different kinds of IM: it is also marred by utopian assumptions in the third category (IM do not necessarily resist hierarchies).

The chief difficulty that arises in all these approaches to the definition of interactivity can be seen to lie in their failure to situate various forms of IM in relation to one another by establishing a scale of qualities that they possess in varying degrees. This difficulty can be overcome in models which understand interactivity as a *continuum* (Jensen 1999, 172). Rogers (1986, 211) defines interactivity as 'a variable: some communications technologies are relatively low in their degree of interactivity (for example, network television), while others (such as computer bulletin boards) are more highly interactive'. Based on this definition, he creates a scale of degrees of interactivity, in which press, radio, TV and film are listed as 'low', teletext as 'medium', and computer communications, including bulletin boards and electronic messaging systems, are listed as 'high'.

Laurel (1991, 20) also proposes that 'interactivity exists on a continuum which could be characterised by three variables': these are *frequency* ('how often could you interact'); *range* ('how many choices were available') and *significance* ('how much the choices really affected matters'). A high degree of interactivity, therefore, can be seen to be characterised by the user having opportunities to interact frequently, having many alternatives to choose from, and having

choices which significantly influence the overall outcome (Laurel 1991, 20; Jensen 1999, 177).

Murray (1997), too, characterises interactivity through three variables: *agency, immersion*, and *transformation. Agency* is the interactor's ability to enter a virtual world and act within it - 'the satisfying power to take meaningful action and see the results of our decisions and choices'.[19] *Immersion* arises from interactive media's concern with the representation of space: it is the experience of being transported into an elaborately simulated place.[20] *Transformation* is the interactor's ability to assume a different identity: it is 'a product of the medium's plasticity, its shapeshifting and kaleidoscopic quality' (152). These characteristics are 'the qualities proper to the machine' (64): they are exhibited to varying degrees in different kinds of interactive media.

McQuail (2000, 127) suggests an alternative set of variables which differentiate interactive media from older media forms: their degree of *interactivity* (that is, the degree of responsiveness or initiative on the part of the user which they enable); the degree of *social presence* experienced by the user (that is, the sense of personal contact that the

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[19] 'When the things we do [in a virtual world] bring tangible results, we experience the characteristic delight of electronic environments - the sense of agency' (Murray 1997. 126).

[20] For Murray, immersion brings the same kind of sensation 'as a plunge in the ocean or swimming pool - that is, the sensation of being surrounded by a completely other reality': 'We enjoy the movement out of our familiar world, the feeling of alertness that comes from being in a new place, and the delight that comes from learning to move within it' (99).

media form engenders); the degree of personal *autonomy* that is engendered (that is, whether the user feels in control of the content and its uses); the degree of *playfulness* (that is, the media's uses for entertainment and enjoyment, as distinct from instrumentality and utility); and the degree of *privacy* that they enable (that is, the degree to which they can be personalised by a user).

These analyses of interactivity in terms of continua are helpful in offering insights into IM's shared characteristics and their relationships with one another. Jensen (1999, 162) builds on them by proposing a methodology drawn from Bordewijk and Kaam's (1986) media typology, which focuses on two central aspects of media not addressed in other typologies: who owns and provides the information, and who controls its distribution.

This typology identifies four basic kinds of relationships within telecommunications: they are called *transmission, registration, consultation, and conversation*. *Transmission* sends content out in one direction, from a service centre to many consumers: it is 'one-to-many', familiar as the 'top-down' mode of established mass-communication, broadcast TV and radio. *Registration* describes systems which support many-to-one communication such as home-shopping and home-banking. Like transmission, registration is strongly centralist: the chief role of the centre here, however, is not to distribute information to viewers, but to

collect it from them. *Consultation* describes a mode in which content is produced and owned centrally, but the consumer controls which information is to be delivered, and when. This mode, therefore, supports on-demand services such as video-on-demand. *Conversation* describes a mode in which consumers produce, own and share the content; the centre is a technical facility only, and does not produce any content of its own. This is the mode of the telephone, e-mail, and on-line chat-rooms.

Jensen maps these four variable categories onto interactivity in the following way:

1. *Transmissional interactivity* is a measure of a medium's potential to let a user choose from a continuous stream of pre-selected material (e.g. teletext, near-video-on-demand, multi-channel systems).

2. *Registrational interactivity* is a measure of a medium's potential to gather information from users and to respond to their needs and actions (e.g. home-shopping, home-banking).

3. *Consultational interactivity* is a measure of a medium's potential to let a user choose, by request, from an existing store of pre-produced information in a two-way media system with a return channel (e.g. video-on-demand, on-line information services, CD-ROM encyclopaedias, search engines).

4. *Conversational interactivity* is a measure of a medium's potential to let the user produce and input information in a two-way media system, stored

or real-time (e.g. video conferencing systems, chat-rooms and e-mail) (183).

Jensen's typology is useful because it allows a wide range of interactive forms, and of levels of interactivity, to be characterised; because it avoids definitions which are based too rigidly on specific technologies; and because it enables various forms to be interrelated within a number of continua. It is, moreover, useful for a discussion of inhabited TV because it allows the degree of interactivity enabled by various forms of iTV to be compared, so that the assertion that inhabited TV offers a more genuine kind of interactivity (Wyver 1996) can be examined.

According to Jensen's typology of interactivity, forms of iTV such as multi-channel systems and near-video-on-demand maintain a traditional *transmission* pattern, since they allow a viewer to exercise only limited choice over pre-selected material. These forms therefore fall at the bottom of the scale of interactivity. Forms such as home-shopping and home-banking come further up the scale because they are more responsive to inputs from the viewer/interactor: nevertheless, they are still strongly centralist, and exhibit a *registration* pattern. Still further up the scale of interactivity are services such as video-on-demand, which exhibit a *consultational* pattern. Here a viewer can select from a wide range of programming and define when and how

s/he watches it: in VOD, the broadcaster's control over content is more balanced by the viewer's ability to input than is the case in near-video-on-demand.

According to this scale of interactivity, the claim that the concept of inhabited TV is more fully interactive than these other forms of iTV is supported, since it is the only form of iTV that offers *conversational* interactivity. Inhabited TV is distinguished by the fact that it enables viewers/interactors both to generate programme material and to engage in two-way, reciprocal communications with other viewers/interactors and programme-makers: it can, therefore, be positioned at the top of Jensen's scale of interactivity.

An alternative proposal for a scale of interactivity that falls between *productive* and *selective* interactivity (Ryan 2001) is also helpful for assessing the kind of interactivity that is offered in inhabited TV. Ryan distinguishes, at the top end of the scale, kinds of interactivity that allow participants to act creatively, generating material, performing a role, or participating in the physical production of a text (*productive* interactivity); and, at the bottom end, interactivity that allows simple choices between predefined alternatives (*selective* interactivity.) According to this continuum, internet forms such as chatrooms, MUDs and 3D on-line virtual spaces, which allow interactors to engage in dialogue and play roles, should be characterised as productive, and

placed at the top end of the scale. In contrast, broadcast TV must be characterised as selective and placed at the bottom of the scale, since, while it allows viewers to interact (usually by means of a remote control device) with programmes, this interaction is limited to choices from various non-interactive alternatives: channel-changing does not enable viewers to contribute to texts or influence their outcomes (17).

According to this scale of interactivity, inhabited TV is *productive*, since it allows viewers to become interactors who can generate content, perform, converse, and influence the direction that a programme takes. In consequence, it should be placed at the top end of this scale, and characterised as highly interactive.

The distinction that this scale makes between selective and productive interactivity is helpful in a further way, for it exposes the distance that exists between weakly interactive TV and strongly interactive on-line forms. It thereby draws attention to the fact that, in setting out to combine TV and the internet, the producers of inhabited TV set themselves a challenging task, for they were attempting to integrate forms which lie at opposite ends of the scale of interactivity.

The production team attempted this combination because they wanted to create a kind of iTV that was fully interactive for its viewers: they contrasted this 'genuine' form of interactivity with the

kinds of 'spurious' interactivity that were, in their view, developed in other forms of iTV. In order to consider this asserted contrast, the next sections of the thesis outline these other forms and differentiate their approaches to combining television and interactivity from that of inhabited TV.

1.3 Interactive TV

Interactive TV is characterised by a number of features. These are firstly, viewer *choice* from a range of programming; secondly, a degree of viewer *control* over programming (this includes the viewer's ability to choose, within a variety of limits, when to watch a programme, and opportunities to influence the discourse in a number of ways - for example, s/he can respond to questions in quiz shows, or vote on local and national issues); and thirdly *commodification of content* (viewers are charged for selected content on a Pay Per View, or PPV, basis) (Jensen 1996).

One of the earliest experiments to test these features was a trial of interactive cable TV called QUBE (1977) in Columbus, Ohio (Noll 1995, 21). QUBE's interactive system was based around a set-top box with a small hand-set connected to it by a wire: viewers could push buttons and choose from a range of pay-per-view programming and interactive services. Several channels carried conventional programming such as films and sporting events; ten carried local programming such as news reports and relays of council meetings; and a number of interactive services were offered - for example, subscribers could participate in game shows, vote on local issues, or do home banking and shopping. More insidiously, the system was able to monitor and compile viewing preferences and patterns, tracking and measuring viewing behaviour and calculating the programming accordingly (Tafler 1995, 238).

For a while, the novelty of QUBE's interactive facility ensured its popularity; however, by the early 1980s, the number of subscribers was rapidly diminishing, so that the system was closed down in 1984 (Noll 1995, 21; Tafler 1995, 238). The reasons for QUBE's demise centred on two issues: the technology it used and the content it provided. The technology was doubly problematic: there were repeated technical problems and breakdowns, and it was prohibitively expensive. These problems were compounded by QUBE's failure to develop content that used the system's interactive capacity in innovative ways. As a result, once the novelty of the interactive device had worn off, customers found that the content did not justify the high subscriptions and began to disconnect (Noll 1995, 22).

At the same time, interactivity was being incorporated into television in other ways via a variety of technologies of interaction and control. The availability of camcorders from the 1960s allowed viewers to record their own video material and to use the TV set as a playback mechanism (Winston 1998, 138). When, in 1968, Sony introduced the *Portapak* - a portable, battery driven video recorder with a black and white camera equipped with a zoom lens - the barrier of expertise which separated professional broadcasters and viewers began to be lifted: no longer was TV

the impregnable domain of the professional, and domestic videos could now occupy the same screen-space as broadcasts (ibid).[22]

Another dimension was added to the more active relationship that the VCR instituted between viewer and television by the remote control handset. Although the remote controller offered little more than muting and channel changing, it had profound consequences for programme scheduling and content, for once viewers no longer had to get up and walk over to the TV in order to change the channel, switching from programme to programme could become increasingly frequent. Viewers became more selective and controlling, and channel-surfing, or 'zapping', taught them to interact quickly and regularly with material on the screen (Crisell 1997, 204).

Teletext, which allowed relatively simple interactions with television, also became commonplace at this time. Teletext broadcasts continuously updated news and information in the form of print and simple graphic images: by the 1980s, BBC1 was supporting some hundred pages of text, regularly updated.[23] Teletext's responses are limited by the fact that the information is contained within a closed, repeated loop of a hundred or

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[22] 'This device fertilised the video access movement and expanded the video market enormously to embrace a far wider range of institutions, especially schools' (Winston 1998, 138). In time, broadcasters, too, responded to the availability of cheaper, lightweight equipment: in 1990, the BBC Community Programmes Unit's *Video Diaries* began to experiment with formats which allowed amateurs to record and edit their material so that they could tell their own stories.

[23] The BBC's service was termed *Ceefax* (See Facts); the alternative ITV service was called *Oracle* (Optional Reception of Announcements by Coded Line Electronics).

more pages which are delivered at a predetermined speed, so that it can be painfully slow: nevertheless, it has played a role in familiarising audiences with the idea of interacting with broadcast material, and is an early example of the chance for viewers to opt out of a programme and use their TV set for information when it is convenient to them (Crisell 1997, 205).

The arrival of video cassette recorders (VCRs) provided viewers with a more substantial opportunity to opt out of live television. Between 1980 and 1995, the number of VCRs in the US increased from 1.8 million to 86 million;[24] in Britain, where diffusion was aided by the television set rental business, penetration was even faster - 60% of homes by 1988, and 76% by 1994 (Winston 1998, 126). VCRs brought major changes to TV viewing: they introduced viewers to the notion of time-shifting, or selecting programmes for viewing at their own convenience, and of opting out of the broadcast schedule altogether in order to watch a film on VHS.[25] As a result, TV viewing could be structured around the viewer's, rather than the broadcaster's, schedule.

Although these technologies contributed to changing the audience's perception of TV, very few programme formats were developed which allowed them to interact directly with programme material. An exception was *The Golden Shot*, a long-running Saturday night light entertainment

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[24] As Winston points out, 'By the 1980s the VCR was penetrating the US home at more than twice the rate the PC was to achieve a decade later' (1998, 127).
[25] By the 1980s, in the US each home was renting a video nearly every week in a $10000 million market; in the UK there were 66 million rentals worth nearly £700m (Winston 1998, 126).

show that was broadcast on Anglia Television from 1967 until 1975. Audiences phoned in to the programme and issued instructions to 'Bernie the Bolt', so that he could fire a cross-bow at a target: 'Left a bit .... right a bit ... Fire!' - the instant responsiveness of the phone gave audiences the opportunity to interact directly with the programme content.[26]

While TV viewing evolved in response to new technologies of control and access during the 1980s, it was not until the early 1990s that sustained interest in interactive television as a defined medium was renewed. By the 1990s, a raft of new media developments which had emerged in the twenty or so previous years had become embedded in telecommunications systems: these included cable and satellite TV, VCRs, mobile telephony, PCs and digital music systems (Preston 2001, 2). In the late 1990s, additional advances in digital technologies brought together telecommunications, computer and broadcasting networks in a technical 'convergence': that is, 'the idea that all the machinery of communications is coming together, especially the television and the computer, with profound effects' (Winston 1998, 134).

These technical innovations in communications and computing led analysts to declare, optimistically, that a 'digital revolution' was taking

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[26] *Noel's House Party* (BBC1, 1991-99) was another popular programme which included elements of interactivity. Much of its content depended on viewer interactivity - largely from a studio audience, but often from participants at home. *Sofa Soccer*, for example, was a game in which viewers had to phone up and try to aim footballs past a goalkeeper.

place - a change as significant as the Gutenberg Revolution.[27] In this new era, there would be a revolution in the kinds of television available as TV became more interactive and personalised.[28] The most dramatic change, it was predicted (Gilder 1992; Negroponte 1995), would be the incorporation of TV into the computer industry:

> The growth of the Personal Computer is happening so rapidly that the future open-architecture TV of the future is the PC, period (Negroponte 1995, 47).[29]

Negroponte argued influentially that in the digital era we should think about TV - like computers - as simply made up of 'bits' of digital information. Television would become a 'bit-caster,' able to collect and store programme-content at the viewer's will:

> All of a sudden, TV becomes a random access medium, more like a book or a newspaper, browsable and changeable, no longer dependent on time or day, or the time required for delivery. Once we [...] begin to build it in its most general form, bit radiation, TV becomes a totally different medium (ibid, 49-50).

During the early 1990s, announcements of the positive potential of convergence went unchallenged, giving rise to intense interest in its

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[27] 'New media have features which seem to presage a revolutionary change in electronic media as significant as that brought about by the invention of printing. These features include: abundance of supply of culture and information made available at low cost: more real choice and diversity: restored control to the receiver/user: decentralisation: interactivity rather than one-way communication' (McQuail 1987, 40).

[28] Willis's (1994, ix) statement is typical of many: 'We stand on the threshold of a revolution in the news and entertainment media, and the media as we know them today may cease to exist in just a few short years'.

[29] The number of computers in US homes had gone from a few hundred in 1975 (the year of their introduction as a factory-assembled item), to 20,000 a year later; in 1980, the industry passed the billion dollar sales mark and by 1982 there were just under a million machines. By 1984 there were probably nine million micro computers world wide: ten years later there were 31 million machines (Winston 1998, 236).

commercial potential.[30] As a result, a number of interactive TV trials were planned in the mid-1990s.[31] In the UK, British Telecom trialled near-video-on-demand (NVOD) - a process which involved a time-lapse of minutes between ordering a video and viewing it - in Colchester; Cambridge Interactive TV experimented in Cambridge; Westminster Cable ran a trial in London; and Bell Cablemedia planned systems in Norwich and Peterborough (Crisell 1997, 259). In the US, seventeen major trials were attempted between 1994 and 1996. Major companies such as IBM, Sony, Philips, and Time Warner tested interactive TV systems which featured video-on-demand, games and interactive shopping and banking (Thompson 1997, 11).

The kind of content that was envisaged for iTV at this period included video-on-demand, home shopping and banking, sport, music, community items and games. Hodge describes a typical (imaginary) system:

> Our subject decides to watch a movie, so he or she takes the one-button remote control (with integrated laser pointer) and points to 'movies'. [...] He or she requests the movie and, just as he does, five tempting pizzas appear on the screen. [...] The user is instructed to point and click the one-button remote control on the pizza of choice. The user doesn't have to tell anyone where to deliver the pizza because *the system knows where he or she is* (emphasis in original) (Hodge 1995, 13).

As the viewer starts to watch the film, the pizza arrives. Three minutes of the film are lost while s/he pays for it, but this is not a problem, for the

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[30] *Newsweek* reported in 1993 that 'as the age of interactive media finally dawns, business people realize that they are biting into something very tasty' (cited by Hodge 1995, 71). Other analysts were just as confident: it was predicted that 40 million households would subscribe to some sort of interactive TV by the year 2002, and that total industry annual revenues could rise about $6 billion (ibid).

[31] These trials are described in Blackall and Giles 1996, 45-62.

system allows the viewer to select from a number of junctions where the story can be picked up again.

Developers argued that this kind of content would be irresistible to viewers, yet it consistently failed to attract subscribers.[32] In the UK, despite the amount of effort which was poured into them, the trials achieved limited success: there was no successful application which was universally popular, so that none of the trials continued beyond the preliminary experimental period (Blackall and Giles 1996, 161). In the US, one of the most expensive failures was that of the *Full Service Network* (FSN), launched by Time Warner Cable in 1994 for four thousand households in Orlando, Florida. The service promised five hundred channels and services such as personalised news, games, video-on-demand, on-line banking, and home shopping: but it finished trading in 1997 with losses of $150 million (Thompson 1997, 12).

Despite these problems, interest in iTV did not wane, but increased as an expectant focus on the potential of the internet as a delivery system for

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[32] In 1990, Videotron initiated a service of interactive sports, gaming, shopping, and interactive programming in Montreal: but by 1996, the service had been reduced to its video-on-demand (VOD) and e-commerce elements. In 1993, Viacom and AT&T announced a cable service with VOD, interactive gaming, shopping and information: the idea was shelved in early 1995. In 1993, USWest initiated an interactive TV service of VOD, interactive games, and home banking to 9,000 households: but by March 1996, the project had collapsed. In 1994, Tele-TV, a venture between Nynex, Bell Atlantic and Pacific Telesis, planned an interactive TV network based on VOD and home shopping. The project was abandoned in early 1997. In May 1995 ACTV initiated a service in California - an interactive cable project for 1000 homes with interactive sports broadcasts, gaming, and 'smart commercials'. However, the project was aborted: 'Rollouts have yet to begin'. In 1995, Zing Systems announced plans for a service to a third of US cable subscribers: the company filed for bankruptcy in 1995 (Thompson 1997, 11ff).

interactive communications led to the pursuit of strategies which would enable the technical and commercial convergence of TV and computers.

In the late 1990s, a number of forms of technological integration of the internet and TV were emerging. These included web TV, in which a TV is linked to both a computer and a telephone line, allowing reception on the same screen of both TV signals and internet services; the distribution of internet content via a broadcast medium such as cable; internet-transmitted video information incorporated as a window within web pages; and information complementary to TV broadcasts distributed via the internet (Owen 1999, 312). As a result of interest in these emergent forms, Microsoft paid $450 million for Web TV in April 1997; in the UK, British Telecom, BSkyB, Midland Bank and Matsushita Electric formed British Interactive Broadcasting (BiB) and planned to have 200 channels on air by the middle of 1998; Netchannel, a TV-based internet service, started a service in the UK in 1998; ONDigital (later ITV Digital) was launched in 1998; and in January, 2001, the $100 billion merger of AOL and Time Warner was approved (Castells 2001, 188). Convergence was of central importance for broadcasters: the Director General of the BBC proclaimed that

> the digital age will be an age of media plenty, with on demand and interactivity; with greater access and participation. [...] Any one of these factors alone would bring profound change. But taken together, their impact will be revolutionary (Birt 1999).

However, many of these projects - like earlier versions of interactive TV - were beset with problems.[33] Netchannel soon closed in the UK and the US, refunding its ten thousand customers the $199 they had paid for the system's set-top box. BiB was taken over by BSkyB in July 2000: Open, its interactive shopping service, closed in May 2001, with losses of £116 million for the previous year.[34] ITV Digital, too, folded at the end of April 2002, with the loss of one and a half thousand jobs, leaving £800 million of losses and the potential collapse of scores of football clubs.[35] AOL Time Warner's first year as a merged company was dominated by internal power struggles caused by the attempt to combine a company focused on the internet and one built on 'old' media such as music and cinema: by 2003, the merger was in serious financial difficulties.[36]

These most recent attempts to incorporate interactivity into television have - like the earliest ones - proved disappointing for both consumers and broadcasters. Interactivity is not appealing to many consumers:

> Some of the applications developed a few years ago now don't seem suitable for TV', concedes Jon Florsheim, head of interactive at Sky [...] It seems clear that TV viewers slumped in front of their box do not want to take decisions. They simply want to be entertained (Pedder 2002, 5).

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[33] Owen (1999, 313) surveys the variety of attempts to bring together the internet and TV and issues a reminder that they are all merely experimental, while broadcast-quality video over the internet - although it has been promised for the next decade - is not yet possible. He doubts the future of this form of convergence: '[Video on the internet] can be done in many ways. But what about costs? And consumer demand?' Castells (2001, 190), reviewing Owen's list of convergence forms, affirms that 'none of these forms is practised on a large scale, and none of them is making money', so that 'the future of converged forms of video and the internet still remains tentative'.

[34] Emily Bell, "Bang! The Door Slams Shut on Open," *Guardian*, 7 May 2001.

[35] John Cassy and Matt Wells, "Plug pulled on ITV Digital and 1,500 Jobs," *Guardian*, 1 May 2002.

[36] Owen Gibson, "Good Connections: The Downfall of AOL Time Warner," *Guardian*, 23 June 2003.

Further, major technological problems remain to be solved: the promise of broadcast-quality video-on-demand through an interactive mode requires such a significant increase in transmission capacity that its offer to millions of viewers would, it is claimed, result in the collapse of the distribution system (Owen 1999, 133).[37] Even if rapid technological changes (particularly in digital compression) were to enable the emergence of an integrated multimedia system, it would require a huge investment in infrastructure and programming content: a cost that will have to be met by major conglomerates and - ultimately - viewers (Castells 2000, 397). Why is it, then, that interactive TV has for so long remained an important project for broadcasters?

One answer to this question is that interactive TV is a defence against the changes which the 'digital revolution' is bringing about in the TV industry (Steemers 1998).[38] Digitalisation challenges the concept of TV as a simultaneous transmission to an homogeneous mass audience. In a multichannel world, as viewer choice and control increase, the monolithic audience will fragment and individual viewers will disappear into a schedule of their own making (Fiddick and Bishop 1999): broadcasters will have to battle for a share of the audience as viewers become rich in the number of channels and programmes that they can choose from, but poor

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[37] 'The interactive integrated video future requires much more capacity than we have. not only in national backbones, but also in local distribution systems that link up with individual households' (Owen 1999, 313).

[38] Steemers (1998, 109) lists the threats to quality TV posed by digitalisation as audience fragmentation, rising costs, changing consumer demand, and falling budgets.

in the amount of leisure time that they are able to commit to television viewing (Steemers 1998).

Among UK broadcasters, the BBC took the lead in addressing the changes to viewing patterns which the multichannel era would bring about. Its first incursions into the on-line world can be traced back to 1994, when it established a public web server and launched a number of on-line projects: the BBC Multimedia Centre, initiated at this time, was set up to investigate the possibilities of multimedia technologies (Naylor, Driver and Cornford 2000, 140). The BBC policy document, *Extending Choice in the Digital Age* (1996), embraced the opportunities offered by digitalisation, proclaiming interactivity to be one of the most important features of TV for the future (29). The opportunities of the multi-channel era were seen to lie in four chief areas - *viewer choice, control, access* and *interactivity*. *Viewer choice*, the paper proposed, would arise from a shift in the economy on which broadcasting is founded. No longer would there be only a small number of channels, jealously guarded by a handful of broadcasters: the digital age would be multi-channel. There would be a cornucopia of programming; hundreds of channels, many of them themed and 'narrowcast' to subsections of the total audience who shared a common objective or interest. Viewers would be given *control* over this plethora of material; they would be able to tailor broadcasts to their own tastes, deciding not only what, but when and how they would watch programmes: television would become an 'on-demand' service. *Access* to programme-

making, too, would open up through the arrival of cheaper digital production equipment, and so television production need no longer be the privileged territory of an elite few. Furthermore, *interactivity* would be a key feature of the new TV: viewers would be able to interact with programmes, so that the passive, linear viewing patterns to which we are accustomed would be replaced by a participatory, two-way experience (ibid).

Extending Choice suggests two strategies for creating content in this new environment: *themed programming* and *'side-channels'*. Themed programming develops clusters of additional programmes, information, sound or graphics to complement a broadcast's content.[39] It allows clustered repeats of programmes which the viewer might have missed, or *précis* which tell the story so far for fans of soaps or series. Theming would allow, too, greater live coverage of major events (32).[40]

'Side-channels' allow viewers to opt out of a programme at indicated points in order to pursue a variety of alternative information.[41] The extra programming is synchronised with the linear programme, which continues for viewers who have not selected the interactive channel; when the

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[39] So, for example, an episode of *Pride and Prejudice* could be followed by an *Omnibus* edition on Jane Austen shown alongside the continuing schedule (BBC 1996, 32).
[40] Different parts of events such as the Proms or Wimbledon could, for example, be shown simultaneously (BBC 1996, 32).
[41] As an example, *Extending Choice* describes a health and fitness magazine programme. While a viewer watched the programme, visual cues would appear on the screen to indicate points at which s/he could opt out to obtain extra information - perhaps details of exercises, a recipe, or the address of a health club in the neighbourhood (BBC 1996, 31).

diversion comes to an end, the main programme is seamlessly rejoined (31-32.) The benefit of this approach is that, when the side-channel has done its work, the audience comes together again at the next programme junction, so that the programme and audience coherence (and with them, the BBC's 'brand') is maintained.

These suggestions for incorporating interactivity into television were overtaken as computer-mediated communications became more prevalent within the domestic environment. In 1996, when *Extending Choice* was published, the incorporation of computer communications into TV broadcasts was a novelty to many broadcasters: however, over the next few years, the internet rapidly became a commonplace adjunct to TV broadcasts. By the twenty-first century, programmes conventionally have their own web-sites, which viewers are prompted (during and at the end of programmes) to visit, so that they can 'meet' one another and 'chat' to members of the production team, join in debates or access information about programmes.

This approach can be exemplified by the linked broadcasts and on-line site produced by the Natural History Department in Bristol.[41] Launched in 1998, the web-site was designed to be used as an extra resource following a broadcast, providing additional information and visuals. Viewers were told of the web-site and chatroom during a programme, at its close, and in

[41] http://www.bbc.co.uk/nature

Radio Times listings: once the show was over, viewers logged on and 'talked' (by means of typed text) to the production team. The site has been highly successful:[43] viewers have been especially keen to talk to programme-makers on-line in order to find out about the making of a programme - how it was shot, for example, or the digital effects that were used in post-production; they appreciate the fact that they can access research materials which were generated during production, but for which there was no room in the broadcast. The producers, too, benefit from the dialogue: it enables them to develop their understanding of their audiences and the reception of their programme.[44]

The BBC has not been alone in developing combinations of broadcast and on-line content. Multi-platform delivery across TV and the internet has, for example, delivered remarkably successful outcomes in *Big Brother* (Channel 4 2000-2003), which parallels live video streaming on the web with conventional TV broadcasts made up of edited highlights, so that the time-limited, structured narratives of television are augmented by the expansive, unmediated relays of the internet: the audience are both voyeurs and judges who have the opportunity to phone in and vote each week for one contestant to be evicted from the *Big Brother* house.

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[43] Figures for May 1998, were 7,000 page impressions: for 11th September 1999, 40,599 page impressions: for 8th September 2001, 336,538 page impressions: by the middle of 2003, the site was achieving 1 million page impressions per day. Source: conversations and e-mail communications with Paul Appleby, web-site producer.
[44] Source: ibid.

Despite predictions that the digital era would bring about the demise of TV and the fragmentation of the audience, in *Big Brother* multi-platform delivery has brought about enhanced attention for the TV programme and a remarkably focused audience. In 2000, despite the fact that it ran across the summer's 'graveyard slot,' the series became a broadcasting phenomenon: twelve million viewers watched the final programme of the series, the final phone-in vote to decide who should win the competition elicited 7.7 million phone-calls, and the *Big Brother* web-site had two hundred million page viewings during the programmes' run.[45] In 2001, despite predictions that the programme would lose ratings as viewers became used to its format,[46] it attracted remarkable audiences.[47] In 2002, growth was most remarkable on the *Big Brother* web-site, where viewers could watch twenty-four hour live web streaming from the house, and which increased its ratings to an average of four million page impressions a day. Voting by text messages increased dramatically: there was a 52% increase in the number of votes cast across all media, but the text votes rose from 2% in week one to 30% by week six.[48] Even in 2003, when viewing figures flagged from 2002's average of 4.1 million per programme

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[45] Louise Bishop, "The Making of *Big Brother*: an Interview with Peter Bazalgette," *Producer* Winter 2000/1, 6.
[46] Claire Cozens, "Big Brother Ratings 'May Fall 25%'," *Guardian* 21 May 2001.
[47] On 30 May 2001, *Big Brother* attracted 4.4 million viewers, while the Ten o'Clock News had 4.3 million (Jason Deans, "Big Brother Beats BBC News," *Guardian* 31 May 2001).
[48] Kate Watson-Smyth, "Feed Me Now," *Guardian* 15 July 2002.

to 2.7 million, *Big Brother* achieved Channel Four's highest viewing figures for the year.[48]

The popularity of the kind of interactive features that have been developed in *Big Brother* and the BBC departments like Natural History Unit appears to break the pattern of failure established elsewhere in iTV projects. However, it is important to recognise that, while multi-platform delivery successfully uses the internet as an adjunct to TV, it does not offer a fully interactive form of TV. It achieves a pragmatic solution to the difficult relationship between TV and interactivity by using the internet and television in a mutually complementary way: however, this achievement is made at the cost of the audience's ability to interact directly with the TV broadcast, since a clear separation is maintained between interactive and TV content. The broadcaster retains control over the programming, and interactivity is only an addition to the programme, which retains logical primacy. This form should therefore be called *enhanced* TV, rather than interactive TV.

At first sight, it seems that the *Big Brother* kind of enhanced TV develops a format that is similar to the inhabited TV model, for it brings performers/contestants together in a space that can be scrutinised by

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[48] Peak viewing figures were for the final programme - 7.4 million, in contrast with 10 million in 2002. 12 million votes were cast by viewers, compared with 23 million in 2002. Andrew Clennell and James Morrison, "Big Brother Final is Turn-Off for 3 Million Viewers," *Independent on Sunday* 27 July 2003.

viewers at home. However, there are important differences between enhanced TV and inhabited TV.

In order to establish these differences, the next section goes on to describe the concept of inhabited TV in detail.

1.4 Inhabited TV

The television producer who was instrumental in developing the concept of inhabited TV, John Wyver, was profoundly critical of the kind of interactivity that was offered in existing forms of 'interactive' TV. In an article called 'Audience Participation', published in the new media magazine *Wired* (October 1996),[50] he argued that the kind of iTV offered by the BBC was not genuinely interactive, since it maintained the established hegemony between TV producers and their audiences. In order for a truly interactive form of TV to develop, a fundamental shift in power from broadcasters to the public 'whom they allegedly serve' would have to be brought about: a shift that would be enabled by deploying the strengths of interactive media in order to create a new 'webvision'. The new form - inhabited TV - would be able to 'slip through the restraints on which public service broadcasting was founded - limited access to the spectrum, subordination to government authority, restrictive access to production technology' (35). As a result, a new kind of broadcasting service could be initiated; one that included the public, 'in all its multitudinous and varied voices' (35) to a degree that had never before been envisaged. This is emphatically not the future for television that most broadcasters, including the BBC, envisage: but they are misguided, for it is not a matter of whether a genuinely interactive TV will happen, but who will do it first (35).

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[50] The article's subtitle was: 'The web could alter the balance of power between broadcasters, producers, and viewers, and give new meaning to the term 'public service broadcasting - but not if Auntie has her way'.

The producers of inhabited TV, Wyver proposed, would be these pioneers. They would develop a truly interactive form of TV that would enable viewers to become interactors: the distance which conventionally exists between producers and audiences would be eradicated, and the spaces of television would be thrown open to its viewers. No longer would a TV broadcast be the focus of attention: TV would be demoted and become a facilitative framework that encouraged the primary activity - the creative contributions of communities of viewers/interactors in on-line worlds.

In 'Audience Participation', Wyver explained that he developed these ideas in response to practical experience of the benefits that computer-based communications technologies could bring for TV audiences and producers. His realisation of these benefits was inspired in 1994, when Illuminations Television, a London-based television company specialising in programmes about the arts and new technologies (of which Wyver was a founder), produced a television series for BBC2 called *The Net*. The series centred on computing and, in particular, new communications technologies, and in order to reflect the programmes' subject, Wyver thought that it would be appropriate to include the production team's e-mail address in the programme credits. This was, he believed, the first time that an e-mail address had been given out on TV, for at that time, e-mails were still a novel form of communication. Indeed, they were so new that

an error was made in transcribing them - the crucial @ symbol was omitted (Wyver 1996, 33).

Despite this mistake, when the production team returned to their office after a meal-break following the first programme's transmission, they were astonished to discover that about six hundred e-mails had streamed in. This level of response was unprecedented. The team would conventionally have expected some feedback from *The Net's* audience within the next few days, but on a much smaller scale - probably a dozen letters or so. The responses were of a different kind, too - because the programme had only just been transmitted, the correspondents were more engaged with the content and livelier in their reaction than was usual - it was as if the viewers had been able for the first time to enter into a conversation with the broadcasters (Wyver 1996, 33).

For Wyver, the producer, the moment was revelatory - a 'Pauline' moment which was 'the beginning of a unique and influential dialogue with the programme's viewers' (2000, 4). The immediacy and responsiveness of the internet convinced him that the future of television was about to change irrevocably; that evening, he realised 'that the writing was on the screen for television as we have known, loved or loathed it' (Wyver 1996, 33).

Wyver determined to build on this success when the next series of *The Net* was commissioned for 1995, and so a web-site to accompany the series

was built. In time, this developed several of the features of 'enhanced TV' sites: it provided further background information, extended interviews with people featured in the programmes, and a chat-room where members of the production team could 'talk with' the viewers (Wyver 2000, 4). As the series progressed, Wyver realised that an on-line community was beginning to develop around the television programmes. This community included the programme-makers as well as their audiences - they could 'chat' together about the programme content, and viewers' ideas and criticisms were often reflected in subsequent broadcasts:

> As *The Net* evolved, we brought more and more on-line components into the programme. We built a web-site and engaged in e-mail and chat-room dialogue with viewers. These services helped us shape *The Net* in significant ways. The show, I am convinced, is better because of this process, and so one tiny, trivial corner of today's broadcasting has been enhanced by the possibilities of on-line communication (Wyver 1996, 33).

As he became aware of the usefulness of the dialogue which the interactive site enabled and the value which viewers ascribed to 'talking' to the producers and other viewers, Wyver began to consider ways in which he might develop the relationships between a TV broadcast and on-line site in subsequent programming. He proposed a new kind of interactive TV in which interactivity was far more than a useful supplement to broadcast television: a form of iTV that was fully accessible to its audiences, and that allowed them to become active and productive: one which irrevocably changed the relationship between viewers and producers, turning the existing 'top-down' broadcast model on its head and allowing viewers to become interactors who could take over as the main creators of TV content. 'What if television supported the web?' Wyver asked: 'What if

web sites were the organising force for television shows rather than the adjunct?' (Wyver 1996, 33).

Wyver explained how his proposal might work in practice by describing *The Garden Show*, a hypothetical magazine programme which would be popular and accessible, mixing advice and features with visits to various gardens and interviews with gardeners. The novelty of the show would lie in the way in which it linked the internet and television, allowing broadcasters and audiences to collaborate in the production of programme content, for *The Garden Show*'s main focus would not be a team of professional presenters and their garden, but a virtual space on the internet where participants could engage in a variety of hobbyist activities. As well as 'meeting' and 'chatting' on-line, they would be encouraged to exchange audio-visual material:

> One 'viewer' sends in DIY digital 'movies' about the difficulties of growing geraniums in limy soil on a north-facing bank. Another offers a few photographs and text about ways to increase potato yield. Yet a third uploads digital video gathered on her family's recent tour of Renaissance gardens in northern Italy (Wyver 1996, 35).

The lack of professionalism in these contributions would be balanced by enthusiasm, for the contributors would be 'inspired amateurs whose lack of skill in media is more than compensated for by their love of the subject in hand' (34).

The on-line site would have a two-fold relationship with the series of broadcast TV programmes that accompanied it. Firstly, they would be

interlinked because the material that constituted the TV broadcasts was largely produced on on-line: in the garden show idea, for example, the TV programmes would be made up of material selected from a range of ideas, video-clips, question and answer sequences, and so on, which had been contributed on-line. A professional production team would have access to the mass of diverse material generated by the interactors and, every week, would select its highlights and combine them with professionally-produced material to make up a half-hour television show. Following the weekly broadcast, the viewers whose material was used in the programme would log onto the website to chat to other viewers about their ideas; and so the on-line/broadcast symbiosis would continue.

The second way in which the internet and television were to be connected would arise from the TV programme's role in promoting and organising the interactive site. Information about the site would be contained within broadcasts, and a key function of the first of the TV programmes in the series would be to initiate the on-line activities by providing narrative sequences or information, setting up the scenario, encouraging and orientating the interactors and informing them about ways in which they were able to become involved. As the TV series progressed, there would be frequent references to update viewers and interactors about new activities and events that were about to take place on-line, and to guide and comment on their involvement. When the series and internet site

were to be brought to an end, the closure would be directed and explained with the help of information delivered during a TV show.

The proposals for inhabited TV were, therefore, distinguished by a linked, bi-media approach, in which two media (TV and the internet) were separate, but interdependent; the central focus would be the interactors' contributions, while TV had a supporting role, serving to provide motivations and organisation for interactivity.

Although Wyver described the organisational role of the TV broadcast in relation to the web-site by referring to a factual programme - *The Garden Show* - he emphasised the fact that the same model could be used to develop a fictional form of inhabited TV (35); a TV broadcast could deliver sections of storylines that initiated, guided, and closed a narrative, opening up spaces where interactors could participate and perform, responding to and developing the narrative outline. This suggestion is important, for it would be taken up and developed later in the practical experiments in inhabited TV.

The economics of this model would be based on advertising and on charging a small subscription fee for access to the web-site. If the TV programme and its repeat were each watched by around 4 million people, and one in forty of these decided to subscribe to the password-protected component of the web-site at 25 pence a week, this would create a

subscription base of 200,000 people, or £50,000 per week: 'With those economics there are good arguments for giving away the programmes to anybody who would re-broadcast it, so it could more effectively market the web-site' (35).

In this production model, the role and responsibilities of the television producer would be transformed. His or her main responsibility would now be to the viewers who watched a programme, not to the editors who commissioned it. The most important job of the producer would now be to ensure that the participants' views were adequately expressed and reflected (34). S/he would also be responsible for authoring and maintaining the web-site: s/he would need to find new ways of presenting information on-line that were accessible and enjoyable, and yet reflected the style of the linked TV show. New responsibilities would include managing the information that the web-site accumulated, editing it so that old or superfluous material was discarded and ensuring that the most appropriate material was identified for the half hour broadcast. The producer would retain, too, legal liability for the interactors' contributions; as in conventional broadcasting, s/he would have to 'develop a finely tuned sense of the difference between healthy debate and a potentially dangerous slanging match' (36). The reliability of the site's content would have to be ensured, and the field of censorship and copyright on the web negotiated:

> A programme's producer becomes part town-planner (to set up the core structure of the site), part tax authority (to collect and disburse revenue) and part police force (to ensure order and reliability) (Wyver 1996, 36).

Inhabited TV would be distinguished from enhanced TV because it centrally emphasised the interactive medium. In inhabited TV, the broadcast would only be of secondary importance in relation to the web-site - it would serve to encourage viewers to become interactors, organise the interactive activities that took place, and display some of the interactors' contributions. In enhanced TV, in contrast, the reverse is the case: the interactive site is merely an adjunct to the TV programme, and acts to elaborate, not to determine, the development of content. This emphasis on interactivity in enhanced TV is accompanied by a focus on access: and in this way, too, the medium is distinguished from an enhanced TV programme such as *Big Brother*. In inhabited TV, the interactors are not isolated in a real location (as they are in the *Big Brother* house), but are electronically brought together in a virtual space: anyone can become a participant in this kind of television, logging onto the on-line space from wherever they are in real life. Moreover, in inhabited TV the emphasis is not on voyeurism, or watching the participants, but on creativity - on enabling the participants to produce programme content.

In these ways, the proposals for inhabited TV were original and distinctive, contrasting strongly with conventional approaches to interactive TV, and with the kinds of relationships between interactivity and television that were developing in enhanced TV. However, despite their individuality, the key themes that underpin 'Audience Participation' (1996) - the benefits that interactivity brings to television viewers, and the creative potential that lies within combinations of TV

narratives and an interactive medium - are not unique to inhabited TV, but reflect discussions within critical writing. The next chapter goes on to consider these key themes within contemporary theory.

1.5 Summary

This chapter has presented the thesis's research aims and approaches, defined key terms, and situated inhabited TV in relation to other forms of interactive (and enhanced) TV. With this introduction in place, the thesis moves on to contextualise the ideas that underpin the proposals for inhabited TV.

Chapter 2: Theoretical approaches to interactivity and narrative

2.1 Introduction

This chapter provides a theoretical foundation for the research by exploring the core concepts that underpin inhabited TV (as outlined by Wyver in 'Audience Participation' (1996)) within contemporary theory. The key ideas were that interactivity brings important benefits to television, giving viewers access to programmes and their producers, and that a genuinely interactive form of iTV could be created through the development of communities of viewers/interactors who could contribute programme content based on their real-life interests and experiences. In these proposals, the function of a television broadcast was to support an on-line site, providing a narrative framework that motivated and organised the interactors' contributions.

The chapter starts by contextualising the key assumptions that underpinned the proposals for inhabited TV within IM theory, where they are found to reflect key debates. It goes on to engage with the project's focal issue by exploring a range of theoretical approaches to relationships between narrative and interactivity. The validity of structural approaches to narrative within an interactive medium is considered through a critique of the work of Laurel (1991) and Murray (1997), who propose that strong narrative structures are necessary in order to control interactivity's tendencies to expand a text indefinitely,

temporally and materially. The limitations of these approaches are exposed, and so alternative approaches to interactivity and narrative are investigated. In post-structuralist approaches, interactive media appear to exemplify the 'ideal text' - negotiated and dependent on its readers (Bolter 1990; Landow 1992; Lanham 1993). Yet, while they seem, at first sight, to be apt in this new context, these approaches, too, are found to suffer from shortcomings. Consequently, postmodern approaches to narrative and interactivity are explored. Darley's (2000) description of contemporary digital media as postmodern, and, simultaneously, as characterised by distinctively 'decentred' narrative forms, is found to be particularly helpful for investigating the position of narrative within media that feature interactivity. Finally, the distinctive role of viewers/interactors within the new medium is explored in relation to discussions of spectatorship and performance, production and consumption in contemporary media (Abercrombie and Longhurst 1998).

2.2 Perspectives from IM theory

In his description (1996) of the concept of inhabited TV, Wyver was emphatic that a genuinely interactive form of television would bring great benefits for broadcasters and viewers. Broadcasters, he argued, would get better programmes; producers would get new ways to create work, and new ways to pay for it; and viewers would be turned into communities of interactors, able to produce programme content that was rooted in their interests and experiences (34).

These themes - the benefits of interactivity, the importance of communities of viewers/interactors, and the value of viewers'/interactors' real-life experiences as material for producing content - were key to the concept of inhabited TV. While they distinguished the proposed new medium from other approaches to interactive TV and from 'enhanced' TV, they can be seen to reflect themes that arise in critical writing about interactive media - IM theory, or, as Silver (2000) terms it, 'cyberculture scholarship'.

Silver identifies three stages within cyberculture scholarship, which sometimes overlap and intertwine - 'like all generations,' he writes, 'mine bleed' (24). He calls the earliest of these stages *popular cyberculture* (this arises in the early 1990s, and is made up of a collection of essays, columns and books often written by journalists, and dominated by celebratory approaches and description rather than

analysis or critiques); the second stage he calls *cyberculture studies* (these belong to the mid-1990s, and are characterised by developing academic interest in the subject and a dual focus on virtual communities and on-line identities); and the third stage he calls *critical cyberculture studies* (these arise in the late 1990s, and are characterised by the emergence of cyberculture as an object of critical study) (19).

The enthusiasm for interactivity that is reflected in Wyver's proposals for inhabited TV is typical of early approaches to interactivity. Interactive media are hailed as a revolutionary opportunity:

> We stand at the dawn of a new era. Before us is the most important decade in the history of civilization, a period of stunning technological innovation, unprecedented economic opportunity, surprising political reform, and great cultural rebirth. (Naisbitt and Aburdene 1990, 1; cited Woolley 1992, 213).

This is a medium of emancipation which 'blooms' and 'redeems', whose 'horizons recede in every direction; it breathes larger, it complexifies, it embraces and involves' (Benedikt 1991, 1-3). By connecting individuals and levelling hierarchies, it will bring about 'a decentralised democracy, founded on the primacy of individual liberty and committed to pluralism, equality and community' (Kapor 1993, 63).

Cyberspace is a new frontier to be explored and conquered (Rushkoff 1994): this is a 'millennial' form which offers 'great potential and hope for our emergence into the next millennium as caring, co-operative and creative human beings' (Ascot 1991, 117). Interactivity will bring freedoms of expression and creation, developing empowering forms of art-space that not only bring art to the people, but invite them to become creative artists, for they are 'a doorway to an infinitely transformable reality, the threshold to variable worlds in which we can creatively move and meet and have our being' (Ascot 1991, 116).

Through this pervasively utopian rhetoric, interactivity becomes a buzzword which is attached to a wide range of contemporary entertainments and artforms; it is perceived as a media panacea, so that, in this early stage of writing about interactivity, 'to declare a system interactive is to endorse it with a magic power' (Aarseth 1997, 48).

In contrast to these utopian approaches to interactivity, established media forms (and especially TV) are assessed in dystopian terms. TV content is chastised as an instrument of intellectual deprivation and oppression, so that the TV audience,

> smelling the funeral pyre of excremental culture all around it, decides of its own unfettered volition to celebrate its own extermination by throwing its energies [...] to the black hole of television (Kroker and Cook 1991, 229).

VR pioneer Lanier asserts that the best thing about new media forms is that they 'kill TV' (cited Boddy 1994, 118). TV is seen as a tool of political and cultural constraint which limits democracy by imposing a tiny number of programme choices on many millions of people: it is 'a tool of tyrants. Its overthrow will be a major force for freedom and individuality, culture and morality. That overthrow is at hand' (Gilder 1992, 35).

In these theoretical approaches, an insurmountable ideological divide is erected between interactivity and TV. The opposition is clearly laid out by Kapor (1993):

> The crucial question is 'Who controls the switches?' There are two extreme choices. Users may have indirect, or limited control over when, what, why and from whom they get information and to whom they send it. That's the broadcast model today, and it seems to breed consumerism, passivity, crassness and mediocrity. Or, users may have decentralised, distributed, direct control over when, what, why and with whom they exchange information. That's the Internet model today and it seems to breed critical thinking, activism, democracy and quality. We have an opportunity to choose now (53).

It is scarcely surprising that the form which bridges both sides of this divide - interactive TV - is regarded with ambivalence. On one hand, the concept of iTV is considered to be 'television's second chance' (Boddy 1994, 116): the addition of interactivity will remake conventional television, 'redeeming' a degenerate medium by turning it into an instrument of access and communication, and transforming 'the scorned and degraded television set into a good cultural object' (ibid, 107).[51]

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[51] *Newsweek's* April 1992 *Wayne's World* cover story on new television technologies quotes Apple Computer CEO John Sculley: 'Television's going to get a second chance, and it's going to get it right this time' (Boddy 1994, 116).

On the other hand, however, the practical examples of iTV that actually appear are condemned as dishonest attempts to revive the fortunes of an ailing medium. The kinds of commodified content that are offered - content such as home shopping and banking, pay-per-view and video-on-demand - fail to deliver the freedoms and equalities of interactivity, but promote an 'over-riding consumerist greed' (Tafler 1995). This is not genuine interactivity, but only the offer of commercial alternatives, for interactivity is permissible only as long as the system of choosing and the sequence of choices profit the broadcaster, not the interactor:

> Most commercial applications confine the viewer's freedom to a thoroughly regulated field of profitable branches of channels. Open-ended decision-making environments [...] provide the viewer with predictable passages that, at best, open up on expected programming patterns (Tafler 1995, 238).

These kinds of iTV merely serve to maintain the broadcasters' control over content.

These early analyses of interactivity and iTV provide a deeply ambiguous background for the development of inhabited TV. On one hand, interactivity is seen to have the potential to revolutionise traditional 'transmissional' broadcasting, turning it into a truly 'conversational' mode (Jensen 1999): on the other hand, its use in consumerist forms is seen to give rise to a spurious responsivity. Both of these assessments can be seen to be reflected within Wyver's proposals for inhabited TV. He was confident about the benefits that

interactivity would bring to TV, but at the same time, deeply critical of existing approaches to the combination of interactivity and TV, which he accused of maintaining conventional patterns of content production and distribution.

Wyver's proposed alternative to these spurious forms of interactivity was the development of a truly interactive TV through the establishment of communities of viewers/interactors. This focus on the virtual community can be seen to reflect one of the dominant themes of cyberculture studies (Silver 2000, 22). The development of the theme of community is traced by Silver to Rheingold, who argues strongly for the social aspect of on-line media in *The Virtual Community* (1993).[52] Cyberspace is a place where, despite the lack of physical geography, and of face to face (or even voice to voice) conversations, relationships between individuals are able to grow and flourish: in cyberspace, 'we do everything people do when people get together, but we do it with words on computer screen, leaving our bodies behind' (58). On-line, individuals not only communicate with other people, but 'meet' them so that, over a period of time, they form a community which is defined not by a common location, but by common interests. These new communities mirror real-life social groups:

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[52] This argument is also made earlier by Stone (1991), who traces the origins of on-line communities to the bulletin board services (BBSs) of the mid-1970s. BBSs became *foci* for social interactions: although the messages posted on them were meant to be read and replied to some time later than they were posted 'their participants saw them nonetheless as conversations, as social acts. When asked how sitting alone at a terminal was a social act they replied that they saw the terminal as a window into a social space' (90).

> It's a bit like a neighborhood pub or coffee shop. It's a little like a salon, where I can participate in a hundred ongoing conversations with people who don't care what I look like or sound like, but who do care how I think and communicate (Rheingold 1993, 66).

Like real communities, virtual ones have an affective as well as a

communicative aspect:

> Social aggregations [...] emerge from the net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships (ibid, 5).

The second major theme of cyberculture studies arises from the perceived freedoms that virtual media offer to individuals to transform their identities (Silver 2000, 22). Although it was overshadowed by an emphasis on the development of communities, this theme, too, was reflected within inhabited TV: within the on-line communities, it was intended that interactors would be able to design their own avatars and take on a variety of shapes.

Turkle's *Life on the Screen* (1996) emphasises the benefits of on-line identity transformations, focusing on the ways in which, by acting out a new character in on-line interactions or simply by using a different name, interactors can adopt alternative identities. In cyberspace, she asserts, the conventional signs by which individuals are categorised and 'read' are absent, so that we cannot be classified according to our face, body, clothes,

or voice:

> You can be whoever you want to be. You can completely redefine yourself if you want to. [...] It's easier to change the way people perceive you because all they've got is what you show them (184).

Turkle sees the power of on-line transformations as liberatory, for it allows interactors to explore and express different aspects of their personality, thereby becoming 'authors not only of text but of themselves, constructing new selves through social interaction' (12). While a minority of interactors use such transformations to repress their real identities, for the majority there is a beneficial outcome - the ability to adopt new identities enables them to re-negotiate their understanding of themselves (190).

While the themes on which inhabited TV was founded - its positive assessments of interactivity and virtual communities - reflected discussions within earlier cyberculture scholarship, the concept described in 'Audience Participation' (1996) was distinguished from these approaches in an important respect: rather than elevating the benefits of the virtual, Wyver insisted that content should arise from 'the real' - from viewers' everyday experiences and interests.[53]

This concern to root the new medium in reality is echoed within critical cyberculture scholarship, which challenges unqualified statements of the benefits of virtuality. Robins (1996) argues for the establishment of approaches to cyberspace that do not focus exclusively on the virtual, but instead take account of the actual

[53] Wyver's example of the way in which real-life interests might give rise to content for an inhabited TV programme was an on-line interest group of amateur gardeners who develop material for an on-line site and a broadcast show (1996, 35).

difficulties of the world - 'ethnic conflict, resurgent nationalism, urban fragmentation' (4). So-called 'virtual' media, he insists, should 'begin from the real world' (24), drawing their themes from actual lives and physical, localised existences: 'it is time to re-locate virtual culture in the real world (the real world that virtual culturalists, seduced by their own metaphors, pronounce dead or dying)' (26).

Robins derides theoretical approaches that describe the virtual as 'liberating', arguing that these are characterised by a 'feverish belief in transcendence' that encourages us to think that 'this time round a new technology will finally and truly deliver us from the limitations of all the frustrations of this imperfect world' (5). The fundamental problem with this kind of approach, he writes, is that:

> The proponents of the virtual-technological revolution tend to speak as if there really were a new and alternative reality: they would have us believe that we could actually leave behind our present world and migrate to this better domain. It is as if we could simply transcend the frustrating and disappointing imperfection of the here and now (5).

We need urgently to disillusion ourselves of such beliefs: to realise that 'there is no alternative and more perfect future world of cyberspace and virtual reality' (6).

Robins develops this critique with an attack on cyberculture studies' discourse of community, arguing that we should beware of descriptions of on-line media in terms of communities because they take no account of the difficulties and hostilities endemic to real-life communities. Descriptions of

the internet as 're-kindling the sense of family' and as re-creating 'the ethos of the village pump and the town square' (Rheingold 1993, 9) are not exercises in radical imagination, but fundamentally conservative and nostalgic: they are 'regressive and sanitising fantasies' which do no more than 'perpetuate an Edenic myth' (Robins 1996, 23).

Descriptions of on-line transformations, too, should be challenged. Citing Rheingold (1993) ('I know a person who spends hours of his day as a fantasy character who resembles 'a cross between Thorin Oakenshield and the Little Prince' and is an architect and educator and bit of a magician aboard an imaginary space colony'), Robins concludes that the rhetoric of transformation 'is unspeakably vacuous and devoid of inspiration' (6). There are no genuine transformations on-line, no 'new identities, mobile identities, exploratory identities' - 'Only the technology is new: in the games and encounters of cyberspace, it seems, there is little that is new or surprising' (6).

Jones (1997), too, challenges uncritical approaches to on-line communities. It is important to differentiate between connectedness and community, he writes: so-called 'on-line communities' often only arise from interactors' realisations that there are other users 'out there' who are in some ways like them:

> The internet serendipitously brings us, in our living rooms and offices, a sense of connectedness, but it is an aimless connectedness, a kind which reassures that between 'us' and 'them' there may be some common ground after all' (17).

These circumspect approaches to the benefits of the virtual are consonant with the description of inhabited TV, where, too, the intention was that programme content should 'begin from the real world', drawing on viewers' real-life interests and experiences (Wyver 1996, 35). It was understood that mere connectivity did not necessarily constitute interactivity - this was the misapprehension on which enhanced TV was founded; instead, the sustained development of interest-groups that focused on viewers' enthusiasms would produce deeply-rooted communities of viewers/interactors, so that 'the real' and the development of communities were profoundly interconnected.

These two core themes - the value of on-line communities of viewers/interactors, and the importance of viewers' real-life experiences as a source of programme content - provided the impetus for the development of inhabited TV. Yet Wyver was acutely aware that the new form depended not only upon the development of creative, interactive communities, but upon their successful integration with narrative forms.

However - as the practical experiments were to demonstrate - integrating narrative and interactivity is far from straightforward, and a variety of critical perspectives has been used to investigate the problems that arise. The following sections describe these approaches.

2.3 Formal approaches to relationships between narrative and interactivity

The experiments that followed 'Audience Participation' (1996) became increasingly dominated by attempts to achieve a successful reconciliation of narrative and interactivity. In the course of experimentation, the production team became convinced that the answer to this difficulty lay in using narrative as a structure by means of which interactivity could be controlled.

This approach is also proposed by Laurel in *Computers as Theatre* (1991). The problem with interactors' contributions, she argues, is that they are proliferating and open-ended: computer games may require a player to be hunched over a keyboard for days on end, and similar 'errors of magnitude' occur in virtual reality systems, where 'the raw capabilities of a system to deliver material of seemingly infinite duration is not yet tempered by a sensitivity to the limits of human memory and attention span' (64).

In order to address this problem, Laurel asserts the need for a structure that can impose shape and size on human/computer interactions, and she finds this, not in contemporary theory, but in Aristotle's *Poetics* - what she calls 'hoary poetics' (36). She recognises that the application of Aristotelian principles to interactive media appears to be anachronistic:

> People often find it quite peculiar that I turn to a theory that is over two thousand years old to gain insight into a very recent phenomenon. [...] How can it be useful to us today to employ concepts that were defined in the fourth century BC? Aren't there more contemporary views that would be more appropriate to the task? (36).

However, she defends her choice on two grounds.

In the first place, interactivity can fruitfully be compared with drama: the computer is not merely a mathematical tool, but a creative medium whose interesting potential lies 'not in its ability to perform calculations, but in its capacity to represent action in which humans can participate' (1), and that offers interactors the opportunity to 'become various characters, altering the action by what they say and do in their roles' (6). The computer screen is the space where this participatory activity takes place: entering this space, interactors, as it were, 'march up onto a stage' (6) where they are able to 'fulfil the fantasy of first-person, dramatic interaction in an imaginary world' (9). Interactors therefore become performers who take part in 'a first-person experience within a fantasy world, in which the user may create, enact and observe a character whose choices and actions affect the course of events, just as they might in a play' (10).

The second reason that Laurel gives for her choice of *The Poetics* as a theoretical model for the development of structures in interactive works is the theory's authority, coherence and clarity:

> Without a doubt, there are more recent theorists who have made major contributions to the body of dramatic criticism. [...] But no one has provided a theory of the drama that is as comprehensive and well-integrated as Aristotle's. A deep, robust and logically coherent notion of structural elements and dynamics is required; and this is exactly what Aristotle provides (36).

What is provided by Aristotle, Laurel explains, is 'a comprehensive theory of form and structure' (36), a way of organising the dramatic activities that

take place on-screen into coherent forms, or 'organic wholes' (xi); by adopting Aristotelian precepts, a computer system that is able to control the form of an unfolding drama can be developed. Laurel calls this a 'playwright expert system': it

> enables first-person participation of the user in the development of the story or plot, and orchestrates system-controlled events and characters so as to move the action forward in a dramatically interesting way (11).

As an example of the way in which Aristotelian theory may be used to control interactivity, Laurel turns to the injunction that 'beauty is a matter of size and order':

> Now a whole is that which has beginning, middle and end. [...] A well-constructed plot, therefore, cannot either begin or end at any point one likes; beginning and end in it must be of the forms just described. Again: to be beautiful, a living creature and every whole made up of parts, must not only present a certain order in its arrangement of parts, but also be of a certain definite magnitude. (*Poetics* 1450b, 34-40; cited Laurel 1991, 64)

How can such form be imposed on interactivity, which, by its very nature, disrupts order and 'definite magnitude'? Laurel suggests that beginnings *can* be made if the potential for interactive action within a virtual world is effectively laid out at the outset, so that the first incidents and action are set up, and lines of possibility for future actions are indicated; endings, too, can be clarified if designers are careful to 'close down' activities, providing not only the completions of the work being represented, but also 'the kind of emotional closure that is implied by the notion of catharsis' (64).[54] By means such as these, Laurel asserts, agency can be contained within the

[54] Laurel defines catharsis loosely - an ending in IM may, she says, be purely functional (e.g., a word processor printing off a document), but it may also derive from interactivity itself, when the interactor is 'engaged, pleased, even delighted with the experience' that s/he has had (48).

strict Aristotelian model, and structure imposed on the shapelessness induced by interactivity.

Murray (1997), too, believes that structural approaches to narrative are necessary for controlling interactivity. Like Laurel, she notes the tendency of interactors' contributions to expand content indefinitely by incorporation, association, or generating new material: she terms this the medium's 'encyclopaedic' character, which arises from the fact that 'computers are the most capacious medium ever invented, promising infinite resources' (83). This feature brings benefits, but it is also a handicap, for it can extend content to the point of amorphousness (87). How can such a problem be addressed?

Murray argues that interactors desire clarity and resolutions: they do not want 'indeterminate' texts that give them complete freedom of choice. She therefore rejects the postmodern hypertext tradition, suggesting that, instead of liberating readers from the tyranny of the author and affirming their freedom of interpretation, 'in trying to create texts that do not 'privilege' any one order of reading or interpretative framework, the postmodernists are privileging confusion itself' (133). Instead, she argues, if they are to satisfy their readers/interactors as well as to exploit the characteristic properties of digital environments, producers of interactive works need to find ways of creating concrete and coherent narratives through the use of structures (185). Murray therefore proposes the

development of computer systems that organise interactions by generating a set of formulae and rules:

> The computer can be a compelling medium for storytelling if we can write rules for it that are recognisable as an interpretation of the world. The challenge for the future is how to make such rule writing as available to writers as musical notation is to composers (73).

In her search for a system of narrative-generating rules, Murray turns to Propp's (1968) analyses of the folktale. After analysing a large number of tales, Propp found that a number of constant elements could be abstracted from their variable events and shown to follow the same pattern: a series of *functions,* or minimal actions, which form the tales' underlying logic. Propp concluded that these functions are impelled by a small number of categories of *dramatis personae*:[55] so a hero is someone who is on a quest; a villain can be identified as someone who attempts to thwart the hero; a donor is recognisable as someone who provides him with a magical object to help him on his quest, and so on. Characters for Propp are therefore essentially agents of the action:[56] their role is simply to serve the greater purpose of narrative form, and they are reduced to 'a simple typology based not on psychology but on the unity of the actions assigned them in the narrative' (Barthes 1977a, 105).

This work is elsewhere dismissed as limited and formulaic: Branigan, (1992, 119) for example, argues that it is 'inadequate for analyzing plots

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[55] The hero, villain, donor, dispatcher, false hero, helper, and princess and her father (Propp 1968, 79-80).

[56] 'Function is understood as an act of character, defined from the point of view of its significance for the course of the action' (Propp 1968, 21).

that depend on complex enigmas, psychological attitudes or subtle shifts in perception and awareness'. However, Murray argues that its very reductiveness makes Proppian analysis useful within the new media context, for here, too, narrative is reductively simple. In computer games, for example, characterisation is rudimentary: we find simplified heroes with basic motives - to fight the bad guy, solve a puzzle, find a reward and avoid getting killed. Just as Propp's folktales prioritise action, so computer games subordinate character to activity: the point of a game is not to ask, 'What is a certain character *like*?' but "What would s/he *do* in a given situation?' Furthermore, both games and folktales have simple structures, characterised by the struggle between heroes and villains. In both, the player is heroic protagonist, battling by means of strategy and force to overcome opponents. Indeed,

> Propp's 'algorithm' is much more complex than most electronic games currently on the market [since] the story line in most gaming software can be described in terms of 2 or 3 morphemes (198).

Moreover, games often provide some variety through a simple substitution system: just as one 'magic helper' can replace another in a Russian fairy tale, so one hero can replace another within a fighting game (198).

MUDs, too, rely on the repetition of a narrow set of plot actions, often limited to combat, negotiation and ceremonial events. Indeed, Murray argues, the lack of plot progression in MUDs is an advantage, since a limited repertoire of stereotyped activities makes for more easily sustained role-playing (197).

These attempts to impose formal structures onto interactivity in order to produce 'organic narrative wholes' have been subject to strong criticisms. Murray herself acknowledges the dangers of abstract schema for generating computer narratives - she warns against their 'unnervingly reductive quality' (198) and 'sledgehammer causality' (199).[57] Jennings (1996) challenges the central hypothesis of *Computers as Theatre*, arguing that *The Poetics* is an inappropriate model on which to base interactive works, since it relies upon 'neatly packed Aristotelian methods of linear information processing': 'Precisely because [*The Poetics*] encourages linearity and truncation of thought, it is not a good model for interactive art (347).

Landow (1992), too, argues that the association of Aristotelian concepts of narrative and interactive media is inappropriate. Plot, according to *The Poetics*, is based on fixed sequence: in contrast, interactive media such as hypertexts do not tolerate predetermined order, but challenge '(1) fixed sequence, (2) definite beginning and ending, (3) a story's 'certain definite magnitude,' and (4) the

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[57] As an example, she cites Winston's (1984, 417) schematic summary of MacBeth: 'This is a story about MacBeth, Lady MacBeth, Duncan and MacDuff. MacBeth is an evil noble. Lady MacBeth is a greedy, ambitious woman. Duncan is a king. MacDuff is a noble. Lady MacBeth persuades MacBeth to want to be king because she is greedy. She is able to influence him because he is married to her and he is weak. MacBeth murders Duncan with a knife. MacBeth murders Duncan because MacBeth wants to be king and because MacBeth is evil. Lady MacBeth kills herself. MacDuff is angry. He kills MacBeth because MacBeth murdered Duncan and because MacDuff is loyal to Duncan'. This kind of abstract schema, Murray asserts, has 'an unnervingly reductive quality' (198).

conception of unity or wholeness associated with all these other concepts' (Landow 1992, 102). In consequence, these media 'call into question ideas of plot and story current since Aristotle' (101). Interactivity therefore suggests one of two things, Landow proposes: either interactive narrative is an impossibility, or else Aristotelian concepts of plot do not apply within an interactive environment.[58]

These criticisms of the association of narrative structures and interactivity are profoundly significant for inhabited TV, since they challenge the production team's key strategy for developing content in the practical experiments: containing interactive contributions within tight narrative structures - closed, time-based sequences delivered through strong authorship. Do close comparisons of the new aesthetic and formal concepts of narrative support these criticisms?

A positive answer to this question is provided by examinations of key features that, according to narratology, define narrative - closure, authorship, and temporal sequencing. Tensions between structural understandings of narrative and interactive media can be perceived with particular clarity in relation to narrative closure. Highly interactive media (for example, chat-rooms, MUDs and 3D on-line virtual spaces) are 'conversational' (Jensen 1999) and 'productive' (Ryan 2001): they allow

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[58] Landow tends to the latter conclusion, and therefore suggests that post-structuralist theories offer an alternative way of reading interactive narratives. His proposals are discussed below, section 2.4.

interactors to make links between previously separate content, or to generate new material, so that they are quintessentially open - both open-ended (mutable and expandable) *and* open to their readers (popular and accessible). As a result, in these kinds of interactive media 'there can be no final version, no last thought. There is always a new view, a new idea, a reinterpretation' (Nelson 1981; cited Landow 1992, 58).

Nor do computer games offer the same kind of certain closure as the last page of a novel or the credits of a film, but allow the gamer to re-negotiate an ending in a variety of different ways. A 'duel' game (Rushkoff 1997) such as *Mortal Kombat* allows the gamer to approach the ending in an infinite variety of ways, depending on his/her success in fighting each of the combatants that appear. Even a 'quest' game (ibid) such as *Grand Theft Auto: Vice City*, which has only one final outcome (the gamer becomes the new world boss), has unlimited opportunities for deviations and failures along the way, allowing different perspectives on the ending. Other games offer alternative ways of closing: *Half-life*, for example, presents the gamer with two choices of ending: s/he can join forces with the evil mastermind behind the plot, or resist evil - if s/he chooses the former, s/he will survive, but if the second is chosen, the result is abandonment on an alien planet.

In contrast to computer games, where closure is multiple, or is approached from multiple perspectives, the internet does not seem to be

concerned with closure at all, but instead offers an invitation to browse, achieving an ending only when the interactor is out of time or energy. Here, the interactor's participation is not brought to a considered close, but merely truncated: sated, exhausted, or summoned elsewhere, s/he simply ends. This is a radically different experience from narrative closure - it is disconnection, not completion.

Individual authorship, too, is compromised by interactivity, for interactive agency institutes a relationship with the text in which 'reading' and 'writing' are combined: one in which the author is no longer wholly the author of events once they are set in motion (Cameron 1995, 39). This dual authorship is responsible for computer games' distinctive pattern of progression: the author provides a framework of events and characters that gamers can respond to according to their ability and wishes. In *Final Fantasy 10*, for example, a narrative is established and the player is identified as the son of a famous sportsman who vanished ten years previously; this scenario develops into a series of interactive intervals in which the player can explore the virtual landscape at will, navigating through it, solving puzzles, and fighting various monsters, in order to find a way of completing the quest. An apocalypse game such as *Neverwinter Nights* enhances the collaboration between authors and interactors by allowing gamers to create and develop their own characters, enriching the narrative in an area that is traditionally the preserve of authorship.

Bolter (1990, 144) invents the terms *first-* and *second-order writing* for this kind of collaborative authorship, in which, instead of taking sole ownership, the author creates with the participant in mind, 'creating coherent lines for the reader to discover without closing off the possibilities prematurely or arbitrarily'. This is quite distinct from the unitary authorship that, according to narratologists, is 'the essence of narrative art' (Scholes and Kellogg 1966, 240).

A further difficulty in the association of interactive media and formal concepts of narrative arises from the assertion that narratives are concerned with events that have happened in the past: that 'there is an all-important feature of narrative that is at once linguistic, temporal and epistemological. Narratives concern the past.' (Martin 1986, 74).

However, in contrast with this focus on a past temporality, interactive media insist on the present. In computer games of all kinds - whether duel games such as *Mortal Kombat*, quest games such as *Myst*, or apocalypse games such as *Doom* - events form as the interactor activates them: they are spontaneous and improvised, delivering a series of immediate experiences. In this way, they focus interactors' attention into an everlasting 'now,' the addictive trance that gamers fall into for hours on end (Skirrow 1986, 129). 'The crises are always now, in real-time, live. There are no flashbacks or flashforwards. The game is attached to the present and reality through the person of the performer' (ibid, 122). The immediate and total presence of virtual reality environments, too, is

consistently present tense: the participant is absorbed into a continuous present that insists on immediate decisions, responses, absolute engagement in the here and now. Murray terms this characteristically present-tense operation 'rapture', and identifies it as one of the key features of interactivity: rapture, she writes, is

> an entranced attachment to the objects of the virtual world, through which interactors are drawn relentlessly into an absorbed fascination with that world and therefore into a time which is continuously present (cited by Platt 1995, 193).

For Poole (2000), interactive narratives not only belong to the present, but they characteristically *erase* the past. Interactive game books such as the *Fighting Fantasy* series and the *Choose Your Own Adventure* books, for example, allow the interactor to pick paths through a variety of story 'nuggets', or sections. To keep the numbers of these sections manageable, each storyline does not proliferate endlessly, but crosses over and shares many of the sections with other storylines. This means that each episode can be reached via several different pathways: and as a result, it is not able to refer to a past, which can have arisen on any of the preceding routes. In consequence, the past is erased, and 'you end up with a species of story that is totally amnesiac, that has no sense of its own history' (111).

This distinctive temporality leads to the evasion of one of narratology's most pervasive strategies for analysing temporal relationships within narrative - that is, story and discourse. Narratologists propose that the distinction between story and discourse can be made for every narrative medium: so, for example, in film, the discourse is 'everything that is visibly

and audibly presented to the audience' (Bordwell, Staiger and Thompson 1979, 67); while in literature, the discourse takes a written form - it is 'what we read' (Rimmon-Kenan 1983, 3). Readers/viewers read through the medium to the story which lies beneath:

> The subject of a tale may serve as an argument for a ballet, that of a ballet may be carried over the stage or to the screen, a movie may be told to those who have not seen it. It is words one reads, it is images one sees, it is gestures one deciphers, but through them it is a story one follows; and it may be the same story (Bremond 1964, cited Chatman 1978, 20).

Unlike other media forms, however, interactive media such as computer games cannot be contained within this binary structure, since they appear to comprise not two, but three, layers. There is the story (the collection of events shared, for example, by the interactive game *Blade Runner*, *Blade Runner* the film, and the novel *Do Androids Dream of Electric Sheep?)*. There is discourse - the presentation of these events in interactive media by means of an authored CD-ROM. In addition, however, there is a further layer - the individual articulations which agency develops through successive 'readings' of the game - which is not allowed for within the story-discourse model.

One more difficulty in the association of interactivity and formal concepts of narrative arises from this characteristically present-tense, experiential mode. Interactive media are 'first-person', participatory media; they have been transformed 'from stories told or observed into stories experienced' (Rushkoff 1997, 178). When interactors enter a virtual world

in order to act out different identities and roles, they become *performers* within 'cyberdramas' (Murray 1997, 170).

Yet it is asserted in narratology that narratives are *told*, not performed. On one hand, there is what Plato (in *The Republic, Book 3*) calls narrative, or *diegesis*; and on the other, there is imitation, or *mimesis:* the novel, tale or short story can be identified as diegetic, and dramas or films as mimetic (Genette 1980, 162). For Genette, there is an emphatic difference between mimesis and diegesis - he speaks of the 'truly insurmountable opposition between dramatic representation and narrative' (1988, 41): 'The very idea of *showing*, like that of imitation or narrative representation [...] is completely illusory: in contrast to dramatic representation, no narrative can 'show' or 'imitate' the story it tells' (Genette 1980, 163-4). In this reading, a medium which depends upon performance cannot be described as narrative.

In important ways, therefore, interactive media resist narratological approaches. They are not closed, but open-ended and accessible; they replace unitary authorship with collaborations between authors and interactors; instead of a past-tense temporality, they emphasise present-tense, first-person 'performances'.

The perception of these tensions between formal concepts of narrative and media that incorporate interactivity is of considerable importance for

inhabited TV, since it radically undermines the key approach to content development that was developed in the practical projects: the decision to control interactivity through the imposition of narrative structures. Moreover, it is not only within the context of an interactive medium that this decision was inappropriate: for structuralist approaches to narrative have been subjected to sustained criticisms that have radically challenged their focus on form and authorship. However, in post-structuralist approaches, narrative is reconceptualised as negotiated and provisional, and the reader moves centre stage. These reader-centred approaches appear to be particularly valuable in the context of media, like inhabited TV, that rely on interactors' contributions, and they are discussed in the following section.

2.4 Post-structuralist approaches to relationships between narrative and interactivity

Post-structuralist concepts of narrative appear to be more sensitive than narratological ones to interactive media since, in these approaches, there is a focus on the fluid relationships that develop between readers and texts, and narrative is seen as a practice of reading, where form is provisional and meanings are open to interventions. It has, therefore, been argued that post-structuralist readings of narrative present such significant points of contact with interactive media that practice should be seen as the instantiation of theory (Landow 1992, 2).[59]

The connections between post-structuralist theory and interactivity are first noted by Bolter (1990), who suggests that, since authorship becomes plural in interactive media as the reader joins the author in the making of a text, 'even the most radical theorists (Barthes, de Man, Derrida, and their American followers) speak a language that is strikingly appropriate to electronic writing' (161). The same point is made by Lanham (1993, 130) when he asserts that there is 'an extraordinary convergence' of theory and practice in electronic media, so that 'it is hard not to think that, at the end of the day, the electronic text will seem the natural fulfilment of much current literary theory, and resolve many of its questions'.

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[59] The subtitle of his book sets out its central proposition: *The Convergence of Contemporary Critical Theory and Technology.*

Landow (1992) explores the points of contact between post-structuralism and interactive media through a discussion of hypertexts - electronic texts composed of blocks of writing that can be linked non-sequentially together:[60]

> When designers of computer software examine the pages of *Glas* or *Of Grammatology*, they encounter a digitalized, hypertextual Derrida: and when literary theorists examine *Literary Machines*, they encounter a deconstructionist or poststructuralist Nelson. These shocks of recognition can occur because over the past several decades literary theory and computer hypertext, apparently unconnected areas of enquiry, have increasingly converged (20).

For Landow, post-structuralist approaches to narrative describe 'an ideal textuality that precisely matches that which has come to be called computer hypertext': together, he argues, post-structuralist theory and interactive practice constitute a paradigm shift that insists that we abandon previous concepts of authorship and authority and replace them by identifying the reader ('the interactor') as the principal source of meaning (3).

The convergence of post-structuralist concepts of narrative and forms of hypertext is seen with particular force in declarations of the 'death of the

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[60] An example is the *In Memoriam* web, which attempts to recreate and augment the fragmented expressivity of Tennyson's poem by linking sections together in a non-linear way, allowing the reader/interactor to trace *leitmotifs* that thread through the poem and to explore critical commentaries (Landow 1992, 38). However, it is important to note that Landow uses the term *hypertext* not only to denote written electronic texts, but also to refer more generally to interactive media (which he calls *hypermedia*): hypertext, he writes, 'denotes text composed of blocks of text [...] and the electronic links that join them. Hypermedia simply extends the notion of the text in hypertext by including visual information, sound, animation and other forms of data. Since hypertext, which links a passage of verbal discourse to images, maps, diagrams and sound as easily as to another verbal passage, expands the notion of text beyond the solely verbal, I do not distinguish between hypermedia and hypertext [...] I shall use the terms *hypermedia* and *hypertext* interchangeably' (Landow 1992, 4).

Author,' which ascribe the production of narrative meaning to the reader (Landow 1992, 71). In "Death of the Author", Barthes (1977b), sets out to destroy the concept of the author as single source and owner of a text, the issuing authority which controls and limits its meaning. The Author stands in the way of textual freedoms: he controls and limits, closing off all potentials which exist outside of his original intent. In order to emancipate a text's readers, to set them free so that they can control the process of their reading, therefore, the Author must be killed off: 'The birth of the reader must be at the cost of the death of the Author' (148).

Barthes's announcement liberates the reader from the limitations of authorial intent, describing a creative work whose goal is to make the reader no longer a consumer but the *producer* of the text: the reader is 'the space on which all the quotations that make up a writing are inscribed without any of them being lost; a text's unity lies not in its origin but in its destination' (ibid). In *S/Z* (1974), the author becomes detached from any association with the creative source of the text, and becomes instead a kind of ideological construction, a product of reading: 'Writing is not the communication of a message which starts from the author and proceeds to the reader; it is specifically the voice of reading itself; *in the text only the reader speaks*' (151: italics in original).

Foucault's "What is an Author?" (1984) gives a similar picture of the author as the privileged owner and authority, and therefore as an equal

threat to the readers' freedoms: he is 'the ideological figure by which one marks the manner in which we fear the proliferation of meaning' (119). Foucault hopes to replace this ideology with 'a form of culture in which fiction will not be limited by the figure of the author', in which 'the author function will disappear'. Like Barthes's, his intentions are murderous: he celebrates a new kind of writing in which the work 'possesses the right to kill, to be its author's murderer' (102).

The death of the author is brought about in hypertextual forms, Landow (1992) argues, through the role of the reader/interactor in the production of meaning, and Barthes's distinction between the readerly and the writerly text also seems to be pertinent within this new context. Like the writerly text, the interactive text requires that the reader activate it: its meanings are multiple and mutable, circulating in a fluid and dynamic way during the process of reading. The text may momentarily acquire a particular meaning, but this meaning is never more than provisional: hypertexts therefore appear to be the ultimate 'writerly texts', exemplary models of the 'ideal text', which is open, networked and dynamic (Landow 1992, 3).

The convergence of post-structuralist approaches to narrative and hypertexts can be seen to arise, too, through Barthes's formulation of *lexias* (Landow 1992, 52). Barthes (1974) describes *lexias* as ' units of reading' - 'the blocks of signification of which the reading grasps only the smooth surface, imperceptibly soldered by the movement of sentences, the

flowing discourse of narration, the 'naturalness' of ordinary language' (13). So, too, in hypertextual forms, the text is atomised as electronic links permit individual readers to take different paths through a given body of *lexias*. The openness and non-linearity described here seem fortuitously - almost presciently - to describe the new medium (Landow 1992, 52).

Landow turns to Foucault's (1976) concept of the networked text in order to describe hypertext's characteristic permeability and intertextuality. Just as there is no such thing as a closed, fixed internet text, so there are no discrete texts: rather, each is 'caught up in a system of references to other books, other texts, other sentences: it is a node within a network [...] a network of references' (Foucault 1976, 23). This description is close to the way in which we read hypertexts: for here, too, we create our own 'network of references' and make each site that we visit a 'node in a network' (Landow 1992, 4).

Derrida (1981, 96) also describes the text in terms which offer intriguing links with the accretive, branching networks of interactivity, continually using the terms 'link (*liaison*), web (*toile*), network (*réseau*) and interwoven (*s'y tissent*), which cry out for hypertextuality' (Landow 1992, 8). In the Derridean text, there is no closure: the text constantly spills over its borders, so that it can no longer be considered as a definable whole. 'All of those boundaries which form the running border of what used to be called the text' are blurred: there is 'a sort of overrun

[*débordement*] that spoils all those boundaries and divisions (Derrida 1979, 83). On-line, Landow suggests (61), we experience a similar *débordement*, a Derridean blurring of the edges and ends of the text and an interlinking of all texts together.

From this perception of textual interlinking, Derrida (1973) develops an understanding of the text as a huge assembly, or *assemblage*:

> The word *assemblage* seems more apt for suggesting that the kind of bringing-together proposed here has the structure of an interlacing, a weaving, or a web, which would allow the different threads and different lines of sense or force to separate again, as well as being ready to bind others together (131).

This is a description of textual form which is particularly congruent with hypertexts, Landow asserts (1992, 9), for these too are composed of a multitude of discrete sections that can be linked by the interactor in an infinity of new interconnections. Once again, Landow argues, the connection between theory and practice is remarkable: so much so that he describes Derrida's writing on intertextuality as an 'instinctive theorising' of hypertext (9): he concludes that hypertext 'creates an almost embarrassingly literal embodiment of [post-structuralist] concepts' (34).

If these perspectives are extended in relation to inhabited TV, they provide a very different approach from structuralist assertions that interactivity is hostile to narrative organisation. The ability to contribute freely to a text is, rather, perceived to be a key benefit, and limiting it is understood to diminish the opportunities that are afforded by the new medium. In this view, the possibilities for access and creativity made

available in inhabited TV confirm it as a 'writerly' text that gives viewers/interactors access to the pleasures of meaning-making and creation; the tendencies of interactors to produce a mass of content should not be controlled, but accepted as a key benefit of the medium and encouraged to develop.

However, this assessment of inhabited TV must be approached with caution, for there are a number of difficulties in the association of post-structuralist theory and interactive practice.

In the first place, the practical experiments in inhabited TV demonstrated the difficulties to which unrestrained interactivity (or 'writerliness') can give rise: in *Heaven and Hell - Live*, in particular, a mass of interactive responses overwhelmed the text and rendered it incomprehensible.

A further key difficulty to which the association of post-structuralist theory and interactive media gives rise is that the identification of interactivity with the 'writerly' text brings about the conflation of two quite separate kinds of reading. Although at first sight theory and practice seem to fit together as the description and embodiment of the writerly text, in fact the association of post-structuralist 'writerliness' with interactivity fails to distinguish between two very different kinds of activity in the production of narrative meaning. Post-structuralists write of *interpretation*

of the text - the ability to read it differently: while interactive media enable *intervention* in the text - the ability to act within a text, to control it and effect physical changes within it. In virtual worlds, we can 'perform', while reading always positions us on the side-lines:

> A reader, however strongly he engages in the unfolding of a narrative, is powerless. Like a spectator at a soccer game, he may speculate, conjecture, extrapolate, even shout abuse, but he is not a player. [... However,] the effort and energy demanded by the cybertext of its reader raise the stakes of interpretation to those of intervention (Aarseth 1997, 4).

By identifying interactive texts as examples of the 'writerly', therefore, post-structuralist approaches do not acknowledge the important distinctions between interactive and non-interactive texts; they ignore the differences between reading and agency, interpretation and interaction. It is, therefore, 'ironic that a set of ideas which stress plurality and indeterminacy should be employed in the service of a reductive equivalence between very different types of discourse' (Cameron 1995, 38).

The conflation of interaction and interpretation that is brought about by mapping post-structuralist approaches closely onto interactive media is particularly unfortunate within a discussion of inhabited TV. The new medium was distinguished by two separate reception positions, supporting both interactivity and viewers: the ability for viewers to become interactors, and vice versa, was key to the claim that inhabited TV provided a genuinely interactive experience of TV. However, approaches that conflate interactivity and 'writerly' interpretations are unable to distinguish between these two reception positions, and their failure to

differentiate between the ability to read a discourse (viewing), and the ability to intervene productively within it (interacting) means that they cannot engage with one of inhabited TV most crucial and distinctive aspects.

A further difficulty in identifying interactive texts with post-structuralist approaches to narrative lies in the assertion that interactive forms are quintessentially 'open' texts, for certain forms of the new media are distinguished by a strong emphasis on closure. Although, as has been described above, computer games allow different perspectives on an ending, or even incorporate alternative closures, they are nevertheless goal-orientated, and their participants work relentlessly towards a point of closure (for example, towards the defeat of an arch-enemy or the acquisition of a prize), or to less significant punctuations (gamers mark their successes as they collect 'powers', destroy minor villains, solve a puzzle or reach the end of a level). This aspect of computer games was increasingly reflected in the practical experiments in inhabited TV, which were characterised by strong authorship, repetitive closures and a movement towards a final dénouement.

There is a further difficulty in mapping post-structuralist approaches too closely onto interactive media such as inhabited TV. Assertions that the author has 'died' do not allow for the continuing role of authorship within this context. Although the interactor seems to be in control of the progress

of the text, in fact s/he operates only within a pre-existing, authored framework: no matter how great the illusion of user control, an interactor's ability to participate depends upon a preceding work of authorship that creates the environment or the set of possibilities into which the participant steps. Interactive media (including inhabited TV) do not, therefore, necessarily provide interactors with the freedom to create at will: rather, they enable agents and authors to collaborate in the production of textual meanings.

Aarseth (1997) points out the dangers of over-stating the interactors' freedoms to construct meanings. In response to Neisz and Holland's (1984) assertion that 'in a literal sense, there is no text, nothing that could be put on a shelf and pointed to as the source of roughly similar experiences by readers' (120), and Hutcheon's (1988) claim that in interactive fiction 'process is all; there is no fixed product or text, just the reader's activity as producer as well as receiver' (77), Aarseth argues that the possibilities of reception positions in relation to the new media are sometimes idealised beyond recognition: 'The claim that adventure games consists of nothing but 'the reader's activity' is clearly false; otherwise they could hardly be discussed at all' (106).

In some interactive texts - for example, in platform games such as *Zool* - authorship is so dominant that the interactor's agency is reduced to a

repertoire of formulaic responses, a set of switching operations that masks the controlling position of the computer: the participant is

> manipulated by the author in new ways, forced to become the servant of the narrative, surrendering to its prescribed norms of behaviour and acquiescing in the performance of preordained tasks (Skirrow 1986, 128).

Instead of controlling, the interactor is controlled by the programme: 'it is the game which controls [...] with the player only a function of its flow' (130). This is not user freedom, but the assignment of obligatory responses: 'the repetition of a set of actions, performed with almost neurotic compulsion' (129).

The tensions between descriptions of interactivity as the instantiation of post-structuralist theory and practical examples of interactive media became clearly evident in the experiments in inhabited TV. In concept, the new medium was to have offered an accessible and participatory form; however, in practice, there was an increasing reliance on authored narrative forms that closed down the medium's 'writerliness'. The association of post-structuralist approaches and interactive media such as inhabited TV should, for this reason, be approached with caution. While these approaches permit important aspects of the new media to be addressed (their dependence on readers/interactors and their negotiated, provisional meanings) they are limited by overstating the freedoms that are available to interactors and overlooking narrative conventions that emerge within certain forms of interactive media - in particular, computer games. It is

necessary, therefore, to seek an alternative approach that is better able to address the aesthetic that is developing within the new medium.

2.5 Postmodern approaches to relationships between narrative and interactivity

In *Visual Digital Culture: Surface Play and Spectacle in New Media Genres* (2000), Darley argues that a particular area of interactive media - computer games - shares with other contemporary digital media (films, TV and cinema advertisements, computer animations and music videos) a distinctively postmodern aesthetic that foregrounds spectacle and surface-play. This focus on the sensory and the superficial in contemporary media has been brought about through the introduction of digital technologies and techniques, which, by introducing new levels of surface accuracy and image brilliance, have given rise to an aesthetic that foregrounds visual stimulation and direct, immediate sensual pleasures.

In describing digital media in terms of the postmodern, Darley relies upon Baudrillard's insights into the character of contemporary visual media. For Baudrillard (1981), the advent of technical *reproducibility* is the major influence on the aesthetic of the late twentieth century. Drawing on Benjamin's (1973) insight that 'to an ever greater degree, the work of art reproduced becomes the work of art designed for reproducibility' (226), Baudrillard argues that in mass media narratives, the reproduction of products through industrial manufacture has assumed precedence over production. In consequence, our lives have become subject to an excess of information that does not enable meaning but obscures it, abolishing any time for contemplation. In this mode of overproduction, meaning is

replaced by 'the perpetual reactualisation of the same models' (Baudrillard 1983, 100) and 'a fascination with novelty for its own sake' (Baudrillard 1990, 65).

Baudrillard (1988a, 42) proposes that the aesthetic of simulation, appearance and surface-play, and a concomitant demotion of meaning and representation, are profoundly characteristic of modern media. Whereas media representations were once held to refer to an objective reality, their proliferation and reproducibility bring about a new mode of experience that competes with and intensifies reality, presenting a 'hyperreal' that is no longer distinguishable from that which it represents. Television is the apotheosis of this new modality: contemporary TV audiences do not look for richness of imagination in the images that it presents, but instead, for 'the giddiness of their superficiality, for the artifice of detail, the intimacy of their technique' (Baudrillard 1988a, 42).

For Jameson (1991), too, a fascination with surface and the superficial is characteristic of contemporary consumption. Taking issue with 'theories of depth' that urge that understanding can only be gained by looking beyond the appearance of things for deeper meanings or forms, he writes of 'a whole new culture of the image' that involves a new depthlessness and a concomitant concern with surface (by which we are to understand superficiality *and* spectacle): a depthlessness that 'finds its prolongation

both in contemporary theory and in a whole new culture of the image or the simulacrum' (Jameson 1991, 58; Darley 2000, 69).

The proliferations of mass media that are engendered by this new culture have the effect of elevating the private domain, bringing about a definitive shift towards more privatised forms of cultural consumption (Darley 2000, 180). The mass media produce a withdrawal of the individual into an ever more isolated and isolating private world of the all-too-visible, a world to which we have unlimited access via our screens and the networks into which they are plugged. Losing all individuality as s/he gazes at the screen, the gamer or viewer becomes instead a terminal point of media networks, 'a pure screen, a switching centre for all the networks of influence' (Baudrillard 1988a, 133).

This point marks the collapse of the former distinction between the private and public spheres: a collapse which is defining for the digital aesthetic. The introduction of mass media forms - TV, home computers and games consoles - into the domestic arena has led to the development of privatised kinds of cultural consumption which display peculiar characteristics. These forms cut across social location and such categories as urban, suburban and rural: they offer up forms of spectacle which are highly regulated and repetitious, and which, in their removal from 'social reality' and their artificial, depthless imagery, erode ideas of an 'outside world'. Rooms are turned into secluded and solitary playgrounds: the

pleasures of repetitive and superficial play are experienced alone, and solely through images, so that one's encounters with others are inevitably mediated by images - they are always at one remove (Darley 2000, 184). As the aesthetic of postmodernity advances, the visibility of these domestic media will be replaced by an 'obscenity' of the all-too-visible: the screens of consoles and computers will deliver their gamers into 'the harsh and inexorable light of information and communication' (Baudrillard 1983, 133).

The aesthetic of spectacle, superficiality and the private that Baudrillard and Jameson describe has profound implications for contemporary digital media, Darley argues, giving rise to a 'hyperreality' of sumptuous sight (158), and 'the clearest manifestation of the advance of the culture of the depthless image of which Jameson speaks' (76). Audiences for these media no longer look for richness of imagery and imagination, but for 'the giddiness of their superficiality, the artifice of detail, the intimacy of their technique' (Baudrillard 1988a, 42). This is imagery that 'at the aesthetic level at least is only as deep as its quotations, star images and dazzling or thrilling effects' (124): an aesthetic that tends towards pure diversion, elevating form over content, and the image itself over the referent (81).

There are significant points of contact between this description of contemporary digital media and the proposals that were made for inhabited TV (Wyver 1996). The first of these connections lies in the hyper-

production of content that was to be encouraged in the new medium, which would arise from the opportunities for interactors to express themselves 'in all their multitudinous and varied voices' (Wyver 1996, 35). A plethora of material was to be expected as viewers embraced the chance to communicate with other interactors and with members of the production team, and to share material that they had produced with a wide community of interested participants. This content would be assembled within the on-line site, but subject to re-presentation and recycling as it was selected and re-edited by a professional producer in order to produce the subsequent TV programme. When the interactors returned to the web-site following the broadcast in order to discuss and add to the content, they would continue to develop this process of recirculation and reincorporation.

A second connection between inhabited TV and the postmodern character of contemporary visual media arises from its incorporation of TV and the internet. While TV is characterised through the 'giddiness of [its] superficiality' (Baudrillard 1988a, 42), the internet is described (Turkle 1996) as the epitome of the postmodern 'hyperreal', a pure manifestation of contemporary culture's encyclopaedic ability to incorporate knowledge and artefacts, and a medium of excess that reproduces and recirculates content. Its capacity for proliferating content is matched by an absolute eclecticism: it provides a context of parallel narratives and multiple references in which 'the cultures of Tolkien, Gibson and Madonna coexist and interact' (Turkle 1996, 185).

For Poster (1995), the internet is characteristically postmodern because its dispersed, fragmented narratives exemplify a return to the 'little narrative' - narratives which legitimate difference, decentralisation and multiplicity (Lyotard 1984). The internet encourages the proliferation of 'little', local narratives, 'which have no totalising gestures' (66). It places producers and viewers in symmetrical relations: narratives are transmitted 'by senders to listeners who are also possible senders' (66) - invention is central and everyone is authorised as a narrator. Furthermore, narratives form a 'social bond' on-line: through the relaying and reception of narratives, an on-line 'community' develops. Finally, through the creative and generative aspects of the medium, the 'indication of the unknown and the unexpected' is emphasised (Poster 1995, 91).

In this way, too, inhabited TV can be associated with the postmodern aesthetic that characterises contemporary media, for it would enable multiple, dispersed expressivity, presenting a context where 'little narratives' would proliferate. In the new medium, everyone would be authorised as narrator, so that decentralisation and multiplicity would be promoted. When viewers/interactors uploaded digital video clips or added photos or text to the programme web-site, they would add to a proliferation of 'little narratives'; and a sense of community would develop as this content was shared and discussed on-line.

These 'little narratives' would characteristically be generated within the domestic arena as viewers/interactors logged on to their computers at home; and in this way, too, inhabited TV can be associated with the postmodern aesthetic that characterises visual digital media. The viewer's/interactor's activity would be entirely mediated electronically: the on-line *Gardening Show* (to use Wyver's own example) would draw participants away from the outside world and isolate them within a private, domestic environment. Yet electronic linkages would also enable *The Gardening Show* to be inclusive, for its membership would be drawn from individuals who were geographically and socially dispersed, situated in real life across a broad range of location types, rural and urban.

Darley's description of the digital aesthetic is particularly relevant for this discussion of inhabited TV because it is developed with reference to an area of interactive media that became increasingly influential in the development of the experiments - computer games. Computer games of all kinds,[60] he argues, partake fully of the shift towards a postmodern aesthetic of 'neo-spectacle' (124); even though the images of games are of lower definition than the rich displays of other digital media, their main feature is to commandeer the sight and senses, and they exist 'to be looked at - to titillate the eyes of young (male) players who appear to relish such iconography' (160). The visual aesthetic was profoundly important in the experiments in inhabited TV, too. Although the quality of the visuals that

[60] Darley focuses his discussion on three particularly popular games - *Doom*, *Quake*, and *Myst* - but also refers to computer games in general.

could be achieved was limited by the emergent state of the technology used, there was nevertheless a strong emphasis on visual design in all the experiments, and great attention was paid to achieving a rich graphical environment within the constraints of the technologies used. In *Heaven and Hell - Live*, for example, each area was distinguished by colour and texture: Hell was a dark red spiralling hole that drew the interactors downwards, Heaven was pink, fluffy and banded with light, and Purgatory was a patchwork of yellow fields and purple trees.

In computer games - as in inhabited TV - this aesthetic of 'neo-spectacle' is augmented by an interactive dimension. Darley describes interactivity as a kind of kinaesthesia that brings about sensation of 'sheer delight, visceral skill and near-vertigo' (54). The kinaesthetic skills of interactivity entail rapid decision-making tied to great proficiency with game controls, and enable interactors to participate in physical activities such as running, jumping or shooting within an on-screen scene. The 'hands-on' control that computer games grant to interactors is one of the defining characteristics of the genre (157): it produces an illusory sense of presence that Darley terms 'vicarious kinaesthesia' (157) .

Through vicarious kinaesthesia, computer games position interactors as *players*, rather than as readers or interpreters. The observation that computer games focus on physical play leads Darley to an investigation of what 'playfulness' in this context might entail; for play is not limited to

games, since all cultural consumption (and production too) involves an element of play (Huizinga 1955). He centres his investigation on Callois's (1962) taxonomy of play, which develops four categories: these are *mimicry* (or simulation), *agon* (or competition), *alea* (or chance) and *ilinx* (or vertigo). This taxonomy is useful for analysing computer games for a number of reasons. Firstly, they are associated with *mimicry* through their emphasis on various kinds of playing with appearance: not only do they support transformations and performance, but they also 'play with' visual effects, decoration and artifice. Secondly, they are associated with *agon* through their promotion of competition, skills and perseverance; and thirdly, they are associated with *ilinx* through the excitement and vertiginous thrills which they evoke.

Caillois (1962, 11-36) distinguishes two poles in these categories of play: *paidia* is uncontrolled, anarchic play, while *ludus* is regulated, conventionalised play. This distinction, too, is helpful in analysing computer games, for the kind of play which they develop is highly regulated - it is necessary to learn a set of established rules and norms in order to play: while the player seems to have considerable freedoms, in fact control is ultimately given to the game itself, so that it is, in fact, the player who is 'played with'. Computer games do not, therefore, allow the creative control and imaginative spontaneity of *paidia*, but should be located at the end of the continuum designated by *ludus* (Darley 2000, 170).

Through their emphases on playful kinaesthesia and spectacle, computer games can be understood to be concerned with predominantly physical, rather than intellectual, activity. Gamers expect intense, direct sensual stimulation: they are prepared to be perceptually and physically active, but their activity is not primarily intellectual, reflective or interpretative (Darley 2000, 168). The important effect of the reduction of 'in depth' meaning and interpretative activity in computer games is a concomitant demotion of signification: there is a radical reduction in the space and time available for depth of meaning to develop, and in consequence, computer games challenge traditional nations of narrative - there is, quite simply, not enough time for a player to absorb narrative detail, subtlety or complexity (55).

However, the key point is that narrative does not disappear in response to interactivity: instead, it re-emerges in a distinctive form. In this new manifestation of narrative, character and psychological motivation recede: 'There are no discernible characters here - psychological depth does not enter into it - the motives both of players and their enemies are basic in the extreme' (152). Narrative details are pared down - all that are not relevant to the game are omitted, and only elements that serve the game-play are included: weapons, ammunition, artefacts, and various kinds of enemy, for example, are only tokens or emblems - the details of what or who they are not important.

These distinctive forms of narrative are mobilised in brief narrative passages that are given in instruction booklets that accompany a game, or in short filmic sequences which open and close a game, and punctuate the game-play ('cut-scenes'). In *Quake*, for example, the back-story is presented in an instruction booklet: the player (addressed directly) is told

> Your formidable reputation has led to a summons to a secret military installation experimenting with an instantaneous transportation device. The noxious army of an alien enemy, code-named *Quake*, which is from another dimension, is infiltrating this installation. *You* are put in charge of finding and stopping it.

The purpose of these narrative elements is simply to answer scene-setting questions: Who is the interactor to play? What is the scenario? What needs to be done? Who are the opponents? Once the action is underway, narrative is eclipsed by the games' over-riding concern with kinaesthetic performance and player-centred problems such as survival and interactor's passage through a difficult landscape (Darley 2000, 150).

These narratives are, then, impoverished and instrumental: they offer 'a highly schematised and purposefully reductive view of the world' (Murray 1997, 140). Narrative codes that produce a depth and richness of meaning - such as psychological complexity or enigma resolution - are replaced by an agonistic process and problem-solving of a purely technical nature. In this new context, therefore, it is necessary to operate with a far more 'rarefied' notion of narrative than is conventional (Darley 2000, 152).

In order to characterise this new kind of narrative, Darley investigates the appearance of a number of core narrative conventions - temporality, closures and authorship - in computer games. In identifying and examining these narrative features, his intention is not, it is important to emphasise, to schematise them or to 'frame the entire text and reduce it to uniformity' (Ryan 1999, 138): rather, they are taken as helpful indicators of the kind of narratives that are emerging in computer games, and used to demonstrate that, while there is strong evidence of narrative here, it arises in a distinctive new form.

The temporality of computer games is distinguished by the sense of present-tense involvement that they induce - the impression that they give the interactor of 'being there', responding and being responded to. While, in other media, the duration of the text is not the same as the duration of the narrative, in computer games, events are constructed in real time: fictional time (in *Doom* or *Myst*, for example) is more or less co-extensive with the time of playing, because the player is activator of the game, and its central protagonist. This vicarious sense of presence offers a very different experience from the past temporality of classical narratives (154).

Closure, too, is distinctive in computer games. The key conventions of enigma resolution and narrative closure are of minimal significance here, for the enigma is always the same - how to finish, how to find a way through? Closure in this context is about technical mastery and the

resolution of puzzles, not of complex motives or issues. Ideally, it means completing a game - that is, successfully playing one's way through all the levels, overcoming all the obstacles, and defeating all enemies. However, this rarely happens, for it is more likely that the player will have to undertake numerous attempts in order to progress closer and closer to the end (153).

Authorship (defined as individual expression) is also distinctive in computer game production, where there is a focus on production companies - not on individual authors, who remain relatively anonymous. Production is a team effort within a highly commercial and technically-driven context; in a field where development is linked to technical advances, not individual expression, the names of companies such as *Electronic Arts, LucasArts, Sega* and *Westwood Studios* predominate (137).

Authorship is further displaced in computer games by a prevalent intertextuality. Their aesthetic is characterised by a postmodern concern with prior and co-existing styles and forms: 'reference is first and foremost to already existing forms, styles, and images, for reasons which may be ironic, parodic, decorative, ludic, spectacular' (139). Computer games are preoccupied with the recombination and manipulation of images, so that authorship is displaced by 'the ephemeral playing with and working over of

visual forms, styles and tropes' (141). In this medium, the author is no longer the originator, but the modifier, the adjuster or renovator (141).

Darley argues that the erosion of these narrative features within computer games, together with their postmodern aesthetic of kinaesthesia and the production of visual sensations, gives rise to a form that is identifiably narrative, but peculiar to this new context. This distinctive form of narrative requires recognition in its own right, and so Darley coins the term *decentred narrative* to identify it.

In decentred narratives, narrative features recede in favour of the delivery of sensory stimulation and visual impact: they are displaced, or 'relegated to a subordinate position within the overall formal hierarchy that constitutes the game aesthetic' (151). However, the fact that it is decentred does not mean that narrative is unimportant in games: rather, it takes up the vital role of establishing and guiding the player's progression. In this new environment, narrative is instrumental in setting up the rationale and motivation for the game: it informs a player where s/he is, what has gone before, and what s/he has to do. It thereby provides a simple framework that gives coherence, but which also - because it is discontinuous - opens up intervals where interactive game-play can develop, unrestricted by temporal or formal constraints.[62]

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[62] This point is supported by Poole (2000), who argues that the alternation of cut-scenes and playable action provides a powerful motivation to keep the gamer playing, since 'fundamentally, as E.M. Forster remarked of the primary appeal of the novel, you just want to know what happens next' (122).

The model of decentred narrative that Darley discerns in computer games appears, at first sight, to be quite distinct from the pattern of narrative development that was suggested by Wyver (1996) for inhabited TV: in computer games, the narrative framework and interactive intervals are both delivered by means of one technology (usually a CD-ROM), while in inhabited TV, the narrative framework is delivered via a TV broadcast, but the interactivity takes place on-line. However, this difference in technological delivery should not obscure the fact that the model of narrative development proposed for inhabited TV presents intriguing similarities with that found in computer games. As in computer games, in inhabited TV the authored (broadcast) narrative sets up and organises activities within an on-line site, providing beginnings, ends and punctuation points; it imparts important information and instructions for prospective interactors, and opens up intervals where interactors can generate content as they wish. In both inhabited TV and computer games, the authored narrative has a demoted, supportive role in relation to the provision of interactivity; the role of the viewer/interactor (like that of the gamer) is pre-eminent, and the chief function of the broadcast is to encourage and support interactive contributions from participants. In inhabited TV, the decentred position of the broadcast narrative is emphasised by its function as a promotional tool for the on-line site, attracting interactors to it and encouraging them to contribute content.

As Wyver proposed (1996) (and as the experiments in inhabited TV attempted to demonstrate in practice), this model of content development could be achieved not only in factual, but also in fictional programming. A fictional storyline could be initiated by the first TV programme in a series; subsequent programmes could provide updates and guidance for the interactors, and set up the next sequence in the plot; and at the end, the narrative could be brought to a close with a linear sequence delivered in the final TV programme in the series. In this way, the TV programme would provide clear guidance for the narrative's progression, but would not restrict the development of interactors' responses to it.

Both in this suggestion about fictional programming and in the factual *Garden Show*, the proposals for inhabited TV follow the pattern discerned by Darley (2000) elsewhere within contemporary visual media, so that, in concept at least, it appears that the new medium would develop a form of decentred narrative. Would this pattern be demonstrated in practice when the experiments in inhabited TV were set up?

Before this question can be considered through an analysis of the experiments, it is necessary to address an important difference between the kinds of interactivity proposed for inhabited TV and those prevailing

within computer games. In contrast to the emphasis on surface-play and superficiality that arises in games, participants in inhabited TV were expected to develop content that had depth of meaning and significance, since it arose from their real-life interests and experiences and reflected their enthusiasms, memories and concerns; in this respect, the kinds of responses enabled by the new medium would be *productive* (Ryan 2001) rather than *kinaesthetic* (Darley 2000). Furthermore, audience members would be able to switch between viewing and interacting positions; they could to log on to the on-line site, where they could contribute content or 'chat' to other interactors and members of the programme team, or alternatively, switch on their TVs and watch the content generated on-line as viewers. By these means, complex relationships would develop between viewing and interacting, production and consumption; and this aspect of inhabited TV, Wyver declared (1996), would enable the development of a genuinely interactive form of TV. The defining importance within inhabited TV of the productive audience requires that these kinds of responses should be explored in detail.

2.6 The productive audience

The idea that a television audience could - indeed, should - become interactors was central to the concept of inhabited TV. The on-line world would become a space that viewers could 'virtually' enter so that they could contribute and share programme content, and where they would be able to 'perform'; these contributions would subsequently be turned into a television programme that the members of the on-line community could watch as viewers. In inhabited TV, therefore, the relationships between producing content and consuming it, and between viewing, producing and performing, would be fluid and interchangeable.

This feature of inhabited TV was key in distinguishing it from other kinds of iTV (Wyver 1996); yet this reconceptualisation of the audience's role can be seen to reflect a more general shift in patterns of consumption and production within contemporary audience responses, which are increasingly marked by the development of symbiotic relationships between production and consumption, and between spectating and performing. The development of these relationships is analysed by Abercrombie and Longhurst (1998) in terms of the *Spectacle/Performance Paradigm* (henceforth, the SPP).[63]

The SPP is developed as a way of addressing the shortcomings that can be perceived in existing models of relationships between audiences and

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[63] The term 'paradigm' is used by Abercrombie and Longhurst to refer to 'a network of assumptions which prescribe what kinds of issues are proper research issues' (3).

media. These existing models are described in terms of two paradigms; the *Behavioural Paradigm*, or BP (in which the central question is whether the media has effects upon the audience); and the *Incorporation/Resistance Paradigm*, or IRP (which defines the problem of audience research as whether audience members are incorporated into the dominant ideology by their participation in media activity, or whether they are resistant to incorporation in such a hegemonic order). These paradigms can be positioned at either end of an axis labelled *Dominant Text* and *Dominant Audience.* The former is marked by an understanding of the text as monolithic, and the audience as passive, and heavily influenced by preferred meanings;[64] the latter emphasises the skills of audiences in criticising programmes, the diversity of interpretations which they make, and the autonomy which they retain in constructing meanings and pleasures (Abercrombie and Longhurst 1998, 18).[65]

Despite the predominance of Dominant Text/ Dominant Audience

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[64] As example, they examine Hall's (1980) argument that media messages were encoded from within the dominant frame or dominant global ideology, by media personnel who operated professionally from within the hegemonic order, often reproducing messages associated with political or economic élites. The messages contain dominant or "preferred meanings" (14).

[65] As an example of a position close to the Dominant Audience, they cite (22) Fiske's (1989) approach, which is characterised by a belief that audiences are active producers of textual meanings and deliberate and discriminating users of media.

models in recent theory,[66] they are shown to exhibit a significant number of shortcomings (31). While Dominant Text models overlook the fact that contemporary audiences do not respond to media in straightforward, undifferentiated ways, Dominant Audience models overlook the power which television texts have to constrain their audiences and to promote one preferred reading (Curran 1990); there is a danger of confusing the active audience with the resistant one, although activism does not give the power or even the capacity to resist (Morley 1992);[67] celebrating the activity of the audience may conceal the artistic or moral poverty of a text (Seiter et al, 1989);[68] and the idea of playful, or ludic, readings of a text (Liebes and Katz 1993) is difficult to reconcile with a strong theory of hegemony.[69]

Abercrombie and Longhurst argue that these difficulties within existing ways of reading audience responses to media indicate that it is necessary to find an alternative approach: and, further, that this necessity is compounded by the fact that contemporary audiences are changing in ways

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[66] It is pointed out that most of this work lies not at the ends of the axis, but within a narrower compass: a middle position is taken by those who find an audience active in making meanings but only within the constraints offered by the texts they appropriate. Livingstone (1990), for example, rejects both dominant text and dominant audience viewpoints, seeing the creation of meaning through the interaction of texts and readers as a site of negotiation between two semi-powerful forces: texts limit what sense viewers can make while being read in widely different ways (Abercrombie and Longhurst 1998, 60).

[67] Morley, they note, suggests that Fiske confuses an active audience with a resistant one: 'While I sympathise with this concern with readers' rights, I would argue that the concept of 'rights' in this context is problematic in so far as it is perhaps less a question of the readers' rights to make out of a programme whatever meaning they wish than a question of power' (Morley 1992, 29: cited by Abercrombie and Longhurst 1998, 31).

[68] 'In our concern for audiences' pleasures we run the risk of continually validating Hollywood's domination of the world-wide television market.' (Seiter et al 1989, 5).

[69] 'In the idea of playful readings any notion of the audience being constrained by the text is starting to disappear. In a sense, therefore, the *ordered* structure given by the IRP is being undermined by the *disorder* of actual audience response - a disorder of *unpredictability* not of *resistance*' (Abercrombie and Longhurst 1998, 31).

which are not accounted for in previous theory. The key changes are, firstly, that passive audience positions have become linked with performance, so that viewers are now *simultaneously performers and audience* (36): and secondly, that the audience is no longer construed as actively receptive, but as *culturally productive* (Willis 1990).[70] As a result of these changes, they propose, a new kind of audience experience has evolved; this is the *diffused audience* (Abercrombie and Longhurst 1998, 39).

Since inhabited TV provides a context in which viewers are quite literally required to 'perform' and to produce content, the new medium appears to exemplify this new kind of audience experience. It is, therefore, necessary to investigate the characteristics of the diffused audience more closely.

The diffused audience is distinguished from previous kinds of audience experience: that is, *simple audiences* and *mass audiences.*

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[70] Willis's (1990) study focuses on readers and their need to explore cultural creativity in everyday life. Willis treats the media - chiefly tv, video and music - not as texts, but as resources or raw materials: 'Time and again we were brought back to the pervasiveness of cultural media in youth experience. The media enter into virtually all of their very creative activities. But whilst the media invite certain interpretations, young people have not only learnt codes but have learnt to play with interpreting the codes, to reshape forms, to interrelate the media through their own grounded aesthetics' (30). Such a view, Abercrombie and Longhurst argue (24), does not simply construe the audience as active in relation to the video or audio text. It goes further and represents the audience as cultural *producers.*

The main features of *simple audiences* are direct communication between performers and audience;[71] separation between audiences and performers; designated, localised and public performance spaces; a high degree of ceremony; and high audience attention (Abercrombie and Longhurst 1998, 55-57). Examples of simple performances are concerts, plays, films, festivals, political meetings, public celebrations, carnivals, funerals, religious events and football matches (44). Simple audiences appear to be passive, since they are constrained by the physical arrangements of the theatre - the seating and regulations that pertain. However, this physical passivity is accompanied by highly active attention to the spectacle,[72] which invests the performance with a ceremonial quality.[73]

While simple audiences continue to be important in contemporary society, the arrival of mass communications has led to the development of *mass audiences.*[74] With the advent of mass audiences, the notion of performance is altered. Mass audience events are mediated (McQuail

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[71] Simple audiences are distinguished by 'a certain immediacy of the experience of being a member of an audience' (Abercrombie and Longhurst 1998, 45).

[72] 'Spectators are trained to be passive in their demonstrated behaviour during a theatrical performance, but to be active in their decoding of the sign systems made available' (Bennett 1997, 206; cited Abercrombie and Longhurst 1998, 54).

[73] 'Events involving simple audiences are exceptional, depend on a certain ceremonial quality, and demand relatively high levels of attention and involvement. They are not, in other words, the stuff of everyday life. Performances to simple audiences are *noticed*' (44).

[74] 'Mass audience events do not involve spatial localisation, the communication is not so direct, the experience is more of an everyday one and is not invested in quite the same way with ceremony, less attention is paid to the performance which is typically received in private rather than in public; and there is even greater social and physical distance between performers and audience. These changes justify speaking of a *mass audience*' (58).

1987), while simple performances are immediate - that is, performers and audience are physically present at the same time; they do not involve spatial localisation, as do simple audience events; and they are accorded a relatively low level of ceremony and attention (Abercrombie and Longhurst 1998, 67).[75]

These two ways of describing audiences - simple and mass audiences - have been supplemented in recent culture by new developments in the constitution of the audience. The essential feature of this newly-constituted audience - the *diffused audience* - is that performing and spectating, consuming and producing, have become inextricably linked. How have these connections between previously separate activities developed?

Abercrombie and Longhurst answer this question by asserting that these connections arise, crucially, from the insertion into everyday life of the experience of being part of an audience. This insertion occurs as the result of several simultaneous processes. In the first place, society is *media-drenched*: people spend a lot of time consuming mass media, both at home and in public (69). Secondly, the media are intensely *pervasive of everyday life*: not only are mass media essentially domestic in their reception, but they are constitutive of domestic life - that is, they provide a focus for conversation, entertain and inform us, and locate us in national,

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[75] 'Audiences for television. recorded music and magazines are essentially distracted, their attention half given to what else is going on around them; these media become backgrounds for everyday life. Contrast this with the powerful intensity with which audiences (for most of the time) attend to a play in circumstances where everything conduces to such attention' (68).

international and global relationships (Silverstone 1994),[76] and their schedules provide temporal structures which reflect and influence the patterns of everyday life (Hobson 1982).[77] Through this insertion,

> the media and everyday life have become so closely interwoven that they are almost inseparable (Abercrombie and Longhurst 1998, 69).

The third process in the development of the diffused audience is that contemporary society is *performative* - that is, a great deal of human activity is constituted as performance. Importantly, performance and theatre are distinguished in their discussion. Theatre is seen as a limiting term for a certain kind of spectatorial participation in a certain kind of event. Performance, by contrast, 'though it frequently makes reference to theatricality as the most fecund metaphor for the social dimensions of cultural production', (Roach 1995, 46; cited Abercrombie and Longhurst 1998, 71) is seen to embrace a much wider range of human behaviours. The notion of performance is therefore extended from theatre to a greater range of settings, so that it includes, for example, religious worship, political meetings, sports events, concerts, television and radio programmes, public rituals and ceremonies, and 'the sphere of everyday life' (41).

This clarification is necessary, for performance is a contested term. Carlson (1996) clarifies its usage by clustering approaches to the term into two chief categories: on one hand, those which understand 'performative

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[76] Cited Abercrombie and Longhurst 1998, 70.
[77] ibid.

arts' as requiring the physical presence of trained or skilled humans whose demonstration of their skills is the performance - actors, circus performers or athletes, for example; and on the other, those which understand 'performance' in broader terms, suggesting that the recognition that our social lives are structured according to repeated and socially sanctioned modes of behaviour raises the possibility that all human activity can be considered under this heading (4). These two approaches can be drawn together, Carlson suggests, through the proposal that all performance involves a consciousness of *doubleness*, through which the actual execution of an idea is placed in mental comparison with a potential, ideal, or remembered model of that action: an athlete, in these terms, may place his/her performance against a mental standard. This proposal allows for the fact the performance is always for some audience which recognises and validates the act - even if the audience is the self (6).

The insertion of performance can be seen everywhere in contemporary Western developed society. This is a performative society, 'in which human transactions are complexly structured through the growing use of performative modes and frames' (Kershaw 1994, 167): modes that can be seen, for example, in the heritage and tourist industries, where costume drama (in the form of retro-dressing or slick uniforms) is increasingly seen,

or in the catering, travel and retail industries.[78]

By means of these processes - the pervasiveness of the media in everyday life and the increasingly performative nature of human activity - performance becomes virtually invisible, 'dissolved' into everyday life:

> So deeply infused into everyday life is performance that we are unaware of it in ourselves or others. Life is a constant performance; we are audience and performance at the same time; everybody is an audience all the time. Performance is not a discrete event (Abercrombie and Longhurst 1998, 73).

These kinds of performative behaviours are accompanied by an emphasis on spectacle in contemporary culture. Everything in the world is 'framed, looked at, gazed upon, registered and controlled' (78). Through this gaze, spectacle constitutes the whole world as an event and therefore as a performance.[79] This is not a uniquely contemporary phenomenon:[80] however, the construction of the world as spectacle has become more prevalent in contemporary everyday life than previously through the operation of two distinctive processes - it has become *commodified* and *aestheticised* (81).

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[78] 'It can be detected as easily in the associated industries of catering and travel, where the waiter and the air-host are encouraged to add a flick of performative spice to the fare. It appears in the retail industries, where the name tag on the check-out person confers an identity which has little to do with individual character, everything to do with a quasi-personalised and dramatised conception of service.' (Kershaw 1994, 166; cited Abercrombie and Longhurst 1998, 71.)

[79] 'The objects, events and people which constitute the world are made to perform for those watching or gazing' (Abercrombie and Longhurst 1998, 78).

[80] They cite (79-80) studies of the 17th - 19th century landscape's moulding as spectacle in Green (1990); Pugh (1990): and descriptions of tourism as a gaze before a series of spectacles in Urry (1990).

Through commodification, the consumerist possessive gaze (Berger 1972) transforms the world into a series of spectacles or appearances which can potentially be owned:

> The whole life of those societies in which modern conditions of production prevail presents itself as an immense accumulation of spectacles. All that was once directly lived has become mere representation (Debord 1994, 12).

Through the aestheticisation of everyday life, style and design become inserted throughout contemporary culture (Jameson 1991) so that it becomes saturated with images (Featherstone 1991). As a result of the interaction of these two processes, performance becomes more pervasive:

> People simultaneously feel members of an audience and that they are performers; they are simultaneously watchers and being watched. [...] As with the other types of audience, performance is the key, but, unlike the other types, performance is not so linked to events, but has, so to speak, leaked out into the conduct of everyday life (75).

Spectacle and performance are, therefore, intimately linked in contemporary audience responses to media.[81]

The centrality of performance in contemporary media gives rise to the second characteristic of the diffused audience: through their role as performers, the audience members become increasingly productive as 'cultural consumers become cultural producers and vice versa' (75).[82]

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[81] Abercrombie and Longhurst argue (93) that spectacle is also accompanied by narcissism: that is, people act within their everyday lives as if they are being looked at, 'as if they are the centre of attention of a real or imaginary audience' (88). The term 'narcissism' is used to describe, not a particular personality type, but a way of behaving which is characteristic of contemporary society: that is, the way in which 'the self is central and central to an audience - a diffused audience - real or imagined' (92).

[82] 'This homogenisation of producers and consumers is related to the acquisition by audiences of skills of various kinds, the absence of which previously emphasised the distance between performers and audience. In the right circumstances, audience members use these skills to become cultural producers in their own right' (Abercrombie and Longhurst 1998, 75).

Finnegan's (1989) research on amateur music making, which explores how listening to music and performing it are constantly interchangeable, is cited (163) as evidence of the interchangeability of consumption and production in the diffused audience. Through an examination of different kinds of music - classical, brass band, folk, musical theatre, jazz, country and western, rock and pop - Finnegan argues that, for keen musicians, music is profoundly embedded in everyday life, so that we should 'picture human beings essentially as practitioners and performers' (341). For Finnegan, music-making is essentially performative, as, indeed, is human nature: humans are fundamentally and interchangeably performers as well as consumers (Abercrombie and Longhurst 1998, 163).

Shank's (1994)[83] work, which develops the idea of cultural performativity in the context of the popular music *scene*, suggests a similar connection between consumption and production. Within *scenes*, conventional divisions between producers and consumers become blurred in an exchange of live music, so that

> spectators become fans, fans become musicians, musicians are always already fans, all constructing the nonobjects of identification through their performances as subjects of enunciation (Shanks 1994, 131).

Abercrombie and Longhurst develop these descriptions of contemporary audiences as both consumers and cultural producers, and as simultaneously spectators and performers within the context of conventional ('non-interactive') media, but they can usefully be extended

[83] Cited Abercrombie and Longhurst 1998, 164.

into the context of forms of interactive media. Consumers who become adept at using on-line media, for example, can become producers: they can generate material (*productive interactivity* (Ryan 2001)), developing sophisticated technical and cultural skills as they build their own web-sites, contribute to on-line sites, or customise games. In these ways, they can develop links between production and consumption which are characteristic of the diffused audience.

In computer games, moreover, significant connections can be seen to arise between spectacle and performance. When players take control of a virtual character in a computer game, they develop a double perspective on the on-screen activity: they identify with the character or avatar, so 'performing' in the first person; they also watch the action - their own performance - as it unfolds. Computer gamers constantly shift between performing and active viewing, taking turns to interact with the game; when they are not in charge of the interactions, (when they have 'had their go'), they view the action which is taking place on the screen as it is driven by others, and celebrate or admonish one another's progress. Interacting with a work and viewing it are not, therefore, separate activities: spectacle and performance are (as described in the SPP) intimately connected.

Tafler (1995) analyses this combination of performance and spectating in responses to interactive works. He notes that individuals adopt a variety of positions: some step forward and interact, becoming performers for

others to watch: others stand back and watch their activities, forming an audience for the performances. Viewing and performing are not fixed, since viewers and interactors constantly change places:

> The fundamental division between active viewer-participants and passive spectators disappears. [...] Widely differing parameters of involvement fuse within any single interactive situation (264).

These discussions of relationships between consumption and production, spectating and performing appear to have particularly significant points of contact with inhabited TV. The central goal of the new medium was to 'open up the spaces of TV to the viewers' (Wyver 1996, 35) by making watching a TV programme and producing content for it interchangeable as viewers became producers. When viewers/interactors logged on to the on-line world and contributed ideas to a show, they would become producers of content; when they watched their contributions within a professionally-produced programme as television viewers, they would become consumers again. By these means, inhabited TV would allow 'cultural consumers to become cultural producers' (Abercrombie and Longhurst 1998, 75).

Furthermore, this description of the diffused audience appears to provide a helpful approach to inhabited TV through the connections that are made between spectacle and performance. In inhabited TV, watching a television show and performing in it were not to be discrete activities: as a viewer/interactor took part in the on-line world s/he would become a

performer - alternatively s/he could, at will, sit back and watch the TV programme as a member of an audience. In inhabited TV, then, performers were to be simultaneously watchers and watched: performance and spectating were constantly linked.

However, it is important to qualify this association of inhabited TV with the diffused audience in a crucial respect: it has been made in relation to the *proposals* for the new medium, not for the actual outcomes that arose in practice. Would it be possible to fulfil these aspirations for creative, productive interactors within the practical experiments?

In order to begin to investigate this question, together with the one raised above about the possibility of demonstrating in practice the model of decentred narrative that is described in 'Audience Participation' (Wyver 1996), the following chapter describes the development of the proposals for inhabited TV into a series of experiments, and the outcomes to which they gave rise.

2.7 Summary

This chapter has considered the key themes that underpinned the concept of inhabited TV, as described by Wyver in 'Audience Participation' (1996), in relation to theoretical approaches to interactivity and narrative.

It has been shown that the proposals for the new medium reflected important themes within contemporary theoretical discussions of interactivity; and, furthermore, that the core issue with which the producers of inhabited TV engaged - combining interactivity and narrative - has been considered by writers who have drawn upon a variety of positions within narrative theory and applied them to interactive media. Arguments that narrative structures should be used to control and shape interactivity (Laurel 1991; Murray 1997) have been shown to be inappropriate within media that are characterised by interactivity; however, descriptions of interactive media in terms of post-structuralist concepts of the open, writerly text (Landow 1992) have also been shown to be limited by their failure to distinguish between interaction and interpretation, and to acknowledge the emergence of formal narrative features such as closures.

It has been argued that a more helpful way of addressing relationships between interactivity and narrative is provided by a description of narrative as decentred within the new media environment (Darley 2000): according to this approach, narrative emerges (albeit in a demoted and attenuated form) within a postmodern aesthetic characterised by spectacle and the

hyperreal. This approach has been found to offer intriguing points of contact with the model of content development that was proposed for inhabited TV.

These discussions of decentred narrative in relation to inhabited TV have been augmented by considering the 'productive' audience. The distinctive forms of interactivity that were proposed for the new medium are, it has been suggested, illuminated by discussions of developments within contemporary audience responses; responses that, like those of the 'inhabitants', are characterised by close relationships between production and consumption, spectating and performing (Abercrombie and Longhurst 1998).

These theoretical discussions have been developed in relation to the proposals for inhabited TV that were outlined by Wyver in 'Audience Participation' (1996). The following chapter goes on to describe the experiments that were set up to test these proposals in practice.

Chapter 3

Case Study

3. 1 Introduction

In conjunction with a team of broadcasters and technical experts, Wyver developed the concepts for inhabited TV that he had outlined in 'Audience Participation' (1996) into a series of practical experiments: *The Mirror* (January - February 1997), *Heaven and Hell - Live* (August 1997), and *Out of This World* (September 1998).

This chapter details these experiments and their outcomes. It discusses *The Mirror* and *Heaven and Hell - Live*, and describes a case-study, drawn from participant observation, of *Out of This World*.

The results of these experiments were mixed. *The Mirror* provided some positive insights into ways in which on-line communities might develop in response to television content, and in which temporal sequences could motivate and punctuate interactive contributions. When the production team tried to build on these lessons in *Heaven and Hell -Live*, however, they were unable to repeat this success, but found that interactivity was profoundly disruptive of narrative sequences. Consequently, they attempted, in *Out of This World*, to devise a narrative structure that would withstand interactive disruptions: however, this attempt, too, failed to produce engaging, coherent content for interactors and viewers. The experiments were not able, therefore, to fulfil the

potential that was apparent in the concept of inhabited TV by providing a successful demonstration of a way in which its distinguishing features - the combination of interactive and broadcast media, and the transformation of TV audiences into communities of interactors - might work in practice. The implications of this failure will be investigated in the following chapter of the thesis.

3. 2 *The Mirror* and *Heaven and Hell - Live*

A production team made up of members from Illuminations TV, the BBC, and BT came together to develop the concept of inhabited TV into a practical production in early 1997. The focal idea that was developed during the production team's meetings was that the new form should combine the openness and responsivity of the internet with the clarity and followability of television: in the words of Graham Walker, leader of the BT team,

> The starting point of an inhabited TV programme is a professionally authored framework analogous to the programme structure of traditional broadcast TV. The framework defines spatial and temporal structures for both a persistent on-line community and a range of *special events* which are played out against an evolving backdrop (Walker 1997, 29).

This combination would be achieved by broadcasting live from a virtual on-line world, producing a hybrid 'webvision' that integrated TV and the internet. The main function of the hybrid was to enable viewers (who might be geographically far dispersed) to communicate within an entertaining environment:

> The inhabited TV vision is part of a wider belief in the importance of multi-user virtual environments, or *shared spaces*, as a new communication medium. People are represented in a three-dimensional environment by characters or *avatars*, and can move around, converse and interact in a common context of information and applications (Walker 1997, 29).

The production team distinguished inhabited TV from other forms of interactive TV because it centred on viewer-to-viewer and viewer-to-producer communications: it would enable TV viewers to become interactors (or 'inhabitants') who could participate in a TV show, communicating with one another and the programme's producers. Their

contributions would be transmitted to a conventional audience who watched the show on their TVs, but who could, at any point, decide to become interactors and take part in the programme themselves.

Because the viewers' and interactors' roles were interchangeable, inhabited TV was distinguished from other forms of iTV by allowing the audience far greater access to, and control over, programme content: it enabled them to 'choose an appropriate level of involvement in the life of the community and to play an active role in the special events' (Walker 1997, 29).

In order to enable the development of relationships between audiences, interactors, and producers in inhabited TV, the production team proposed that TV and the internet have different but complementary characteristics. The strengths of television were seen to lie in its authored production methodologies; in its narrative structures and planned schedules; and in its ability to deliver content to huge audiences using a technology that has become a familiar part of their lives. In contrast, the strengths of the internet were seen to lie in its ability to support communities and communications; to encourage interactors to be creative; and to bring together 'virtually' individuals who might be far separated in space. Inhabited TV's combination of the two media would therefore bring the possibilities for communication and participation offered by the internet to the mass audiences of television: 'Imagine combining the proven pulling

power of professional broadcast television with the enduring appeal of audience chat and participation, and you have a vision of 'inhabited TV' (Walker 1997, 29).

The production team drew up a model for inhabited TV that had four distinct layers of production and reception.

The first layer was made up of the television show's *performers* - usually a host and team-leaders - who were more or less scripted and who directed the other interactors. Their performance was supported by powerful technology - for example, virtual reality headsets, and high performance computers and networks.

The second layer was made up of the *inhabitants* - members of the public who were able to navigate through a virtual world and interact with it and one another. They used commonly available communications and computing equipment such as PCs, set-top boxes and telecommunications networks.

The third layer was an *audience* who watched the performers and users as they interacted. They viewed the show as a broadcast on their television sets, and could also, at will, become interactors.

A final layer of inhabited TV was the show's *production team*, made up of personnel such as producers, directors, virtual camera operatives, and computer support personnel.

It was decided that the inhabited TV project would be developed for the third series of *The Net* (January - February 1997, BBC2 11:30-11:55 p.m.). Since there were six TV programmes in the series, the production team decided to develop six on-line worlds, or 'shared spaces', each of which reflected the subject matter of one of the programmes: they called these, collectively, *The Mirror*.

The first programme and on-line site focused on the theme of 'space' - the changing shape of a world shrunk by digital communications. The second theme was 'power' - stardom and pornography on the internet; programme 3 looked at 'play', exploring computer games and on-line gambling; programme 4 investigated 'identity', and discussed virtual identities and artificial intelligence attempts to model emotions; programme 5 evoked the theme of 'memory' - it was designed as an open landscape in which icons from history such as President Kennedy and Elvis Presley made their appearance. The last programme centred on 'creation', and included an interview with the creator of 'bots' (artificial life forms which are let loose on the net).

The intention was that viewers would become interactors once they had watched the transmission of the weekly show; they would be guided to the interactive site during the broadcast and invited to take part in *The Mirror* as soon as the programme went off-air. Once logged on, the interactors were seen as graphic representations, or *avatars*; using their PC's keyboards, they could 'chat' together using text to communicate.

The Mirror generated an immediately positive response:

> *The Mirror* was introduced to the half a million viewers of *The Net* in a 3 minute item on Monday January 13th 1997 in the first programme of a new series. The programme ended at 23.55 and there were more than 600 successful registrations by the end of the first hour. Over the course of the next seven weeks the number of registered citizens of *The Mirror* rose to 2,250, including 300 from outside the UK (Walker 1997, 34).

Overseas 'citizens' ranged from Australia to Canada, and South Africa to the Netherlands. In addition, approximately one thousand applications were rejected, mainly because the hardware fell short of the minimum required specification or the Internet ISP could not handle the required network connection (Walker 1997, 34). *The Mirror* seemed to support Wyver's belief that there was a small but nevertheless significant section of the audience who were interested in interactively responding to a television show.

The most important aspect for these interactors were the opportunities that *The Mirror* afforded for social activities and communication, with other interactors and with the show's producers. Over the weeks that *The Mirror* was available, a small but consistent community gradually developed around its chat-rooms and special events: 'About 2-3% of

registrants became regular users, appearing on-line most days. Although they were loyal supporters of the special events, it was the social chat and other citizens which brought them back time after time' (Walker 1997, 36).

In television terms, the numbers involved were microscopic, but the production team saw them as an indication of inhabited TV's potential and put a good deal of effort into fostering the community, striving to teach the interactors about the on-line worlds so that they felt confident within them, and to draw the two sides of production (producers and participants) together. For example, they scheduled a 'party night' at the start of each week in the new virtual world as it came on-line. The parties' function was both practical and social - they allowed the worlds' designers to introduce the interactors to each new environment and guide them through its particular features, as well as to 'meet' the production team and other inhabitants. These introductory sessions helped significantly to establish not only technical competence but a sense of community; over time, a number of relationships were established, and one couple who met through *The Mirror* later married.

The final party was held at the end of *The Net's* six-week run, when *The Mirror* had to be closed down. Eighty participants attended this an 'end of the world party' simultaneously, and several of them humorously expressed dismay at the world's destruction; one threatened to stop paying the TV licence fee if the worlds really were closed down, while others

suggested the establishment of a 'Mirror Anonymous' group for addicts (Walker 1997, 36).

The production team were able to draw two important lessons from *The Mirror*. The first of these was that communities of interactors could successfully be created in response to a series of TV programmes. The second, equally important lesson, was that an interactive medium could be organised through the introduction of *events*. The researchers had scheduled a number of events to take place at specific times within the virtual worlds: as well as the parties, they set up a debate in which celebrities such as Douglas Adams led discussions, and the interactors were able to put questions and vote on the outcomes; and a virtual art exhibition in which interactors could display artworks that they had created in VRML2. These scheduled events became highlights for the interactors, and the discovery that events could be timetabled in a virtual world was an important insight for the production team:

> Scheduled special events were an important aspect of The Mirror. Although the worlds were 'open' 24 hours a day throughout the experiment, the size of the community was insufficient to sustain a continuous human presence in six distinct worlds. [The events provided] a structure for authors, producers and celebrities to influence the action in the space (Walker 1997, 32).

Consequently, a regular timetable of activities was established, and the idea of structuring the on-line element with events became a key component in later experiments in inhabited TV.

After the series of *The Net* ended in February 1997, the production team met to discuss the project's results. The outcomes had, they agreed, been overwhelmingly positive, since they had proved that TV viewers wanted to interact with TV programmes; opportunities to form communities and to communicate had been most important for the interactors, while scheduled events had emerged as a key element in focusing their interest.

In response to the last of these insights, Wyver wanted to go on to explore whether a closer integration of television and the internet might be achieved. In *The Mirror*, interactivity and narrative had been used in complementary ways so that (although the project had emphasised the development of communities of interactors and their ability to contribute content that was incorporated into a TV programme) this experiment had developed a model that was close to enhanced TV. Yet Wyver was critical of the 'telecentricity' of this model, and wanted to move beyond its complementary TV/internet relationship, integrating the two media not as adjuncts but as a unity. However, his enthusiasm for this model was not matched by the BBC, who wanted to focus instead on the enhanced TV format. Wyver therefore took his idea for a second experiment in inhabited TV (*Heaven and Hell - Live*) to Channel 4, who commissioned it early in the summer of 1997.

Wyver's ambition in *Heaven and Hell - Live* was to combine the narrative structures of TV with the internet's open-endedness by broadcasting a programme from 'inside' cyberspace. He realised that there would be significant difficulties in this combination, for, despite their superficially similar screen-based displays, TV and the internet have very different time-scales. While a TV broadcast requires precise timings so that it can fit exactly into an ongoing schedule, interactive media operate according to extensive, flexible time-scales - an interactor can choose to participate for as long, or as little, as s/he likes.

In order to alleviate this problem, *Heaven and Hell - Live* was modelled as a TV gameshow: it was hoped that this structure would be clearly and immediately comprehensible to viewers, and would provide an organised construction that enabled interactors' contributions to be temporally constrained (Wyver 1998, 2).

Heaven and Hell - Live was commissioned by Channel 4 as part of a series called 'Renegade TV'; there were three, three-hour long evenings of programming, focusing on 'issues of technology, rebellion, and difference' (Wyver 1998, 6). The programme was to be an hour-long special, broadcast from 12.50 am on Tuesday 19th August 1997, and was billed in the Radio Times as follows:

> TV and the Internet converge in an interactive entertainment show allowing live participation by viewers. (Instructions on how to take part can be found on the Channel Four website).

Wyver was optimistic about the project's potential. In an article in *Broadcast* (8 August 1997) - 'C4 set to screen interactive first' - he was reported as saying that he hoped the programme would 'be the basis for a series next year', and that 'the programme format could do well in international sales when the software is fully proven'.

Heaven and Hell - Live was designed, after the inhabited TV model, as four layers of involvement. The *performers* were the game-show host (Dante, played by Craig Charles), whose role was to introduce the games, explain the rules, organise the contestants and moderate their progress, in an energetic and entertaining way. The other performers were two team-leaders ('Johnny' played by Katie Puckrick and 'Angelica' played by Malcolm Jefferies): the idea was that they were imprisoned in Purgatory and had to while away the *longueurs* of eternity by playing games - they would end in Heaven or Hell, depending on their success or failure. The performers were represented in the virtual world as avatars (that is, simple, cartoon-like graphical models) - a bull (Dante), punk princess (Angelica) and fox (Johnny).

The *inhabitants* were the interactors, whose role was to help Dante and the team leaders play the games. Each of them was represented on the screen by an avatar, which, in keeping with the programme's theme, was called a 'lost soul'. The inhabitants accessed the on-line world from their

PCs at home: they had already received a CD-ROM containing the graphics of the virtual world and a web browser. Communication in the virtual world was effected by the participants typing text from their PCs; the comments appeared in little flags above their avatars' heads.

The third layer of 'inhabited TV' was the *audience*, who watched the antics of the presenters and avatars on their televisions, just as they would a conventional programme: 'the souls can communicate with each other, flirt, fight and play games,' Dante told the viewers, 'and what you are doing watching the TV is spying on them living out their virtual afterlives here in Heaven and Hell'.

A fourth layer was made up of the *production team*, consisting of a producer (Wyver), a director, vision mixer, sound mixer, production assistant and technical support staff.

The virtual world occupied by the performers represented the three zones of Heaven, Hell and Purgatory.[84] The three parts were visually distinct: Heaven was pink, fluffy, and luminous; Hell was red, vascular, and tortuous; and Purgatory was 'a day-glo graveyard on a summer's evening', as Dante described it. This visual design was appreciated by the show's inhabitants:

> The design overall was much praised by users, who appreciated its organic and richly coloured feel (Wyver 1998, 8).

[84] The world was created using VRML (Virtual Reality Mark-up Language) 2.0 and Sony's Community Space server software.

The programme was structured into four games. Game number one was a treasure hunt. Parts of a skeleton were scattered around the virtual world, and Angelica and Johnny had to locate these and try to be the first to put the bits together. As they looked around, Dante gave them riddling clues to help point out the bones' position; for example, 'Elvis is invited to the teddybears' picnic' was code for 'look for the pelvis in the wood'. The inhabitants were supposed to help the two contestants by offering suggestions to solve the riddles. Game number two challenged the avatars to collaborate physically: they were asked to stack themselves up into towers two, three or four avatars high in order to gain points. Game three was a kind of virtual rounders, in which the avatars progressed around a circle of gravestones as they answered quiz questions; the aim of the game was for the contestants to catch one another up. In the final game, contestants had to gamble the points that they had collected earlier by guessing when a virtual pod would open.

In order to emulate the timescales of a television gameshow, each of these games was strictly time-constrained - contestants had only three or four minutes to assimilate the rules for each game and play it.

In contrast to the simplicity of the programme content, the technical delivery was highly complex. The three actors - Dante, Angelica and Johnny - were situated in a three-camera television studio which provided

shots of the performers' reactions as they lead the games. In addition to this TV equipment, the studio housed a number of network PCs and a high bandwidth network connection. 'Shots' of Dante's territory were generated by six 'virtual cameras' - not conventional cameras, but high-end PCs which offered visual perspectives from inside the shared space.

The two worlds (studio and virtual) were integrated by intercutting from one shot to another, and by vignetting - the feeds from the studio cameras were boxed into the image generated from the virtual world. Sound from the studio - the mainly unscripted conversations between the actors - was mixed with effects and music and ran seamlessly across both virtual and real worlds, playing an important part in coalescing them and giving the programme impetus and flow.

Reception of the programme was, like its production, doubly complex. The show was seen simultaneously on television and PC screens by, respectively, the audience and interactors. Some of the inhabitants had repositioned their PCs and TVs so that they were side by side with one another for the broadcast; this allowed them simultaneously to participate in the on-line world and view the broadcast. These individuals appreciated their 'fifteen megabytes of fame'; 'I've just seen myself on TV! WOW!' one of them typed as he saw his avatar on the screen.

In technological terms, the experiment was a *tour de force*. It was able successfully to interface television and web technologies, and was sustained technically for its allotted time - it went on air precisely as scheduled and became structurally an integrated part of Channel Four's schedule, maintaining the promised period of broadcasting with few technical glitches which would have been noticeable to the audience; at the same time it existed as a coherent web world for computer users. After the show, Wyver expressed himself satisfied with the project's technical achievement:

> Technically, the project - which was truly experimental - was remarkably robust and stable. The six PCs creating the camera views were on occasions unpredictable, especially in supplying consistent audio, and several needed to be re-booted during the broadcast. But these problems did not show up on screen and the show remained on the air for its full length. This in itself was a not inconsiderable achievement (Wyver 1998, 1).

However, despite this success, the show presented its interactors and viewers with significant problems.

There were two main problems for the interactors: the pace of game-play, and the establishment of coherent social interactions in the on-line worlds (Wyver 1998, 2; Benford et al 1999a, 183).

The interactors' unhappiness about the pace of the games stemmed, Wyver deduced (1998, 7), from the fact that the concept behind the project and the reasons for the experiment were poorly communicated to the inhabitants. The pre-broadcast publicity had concentrated on raising the participants' expectations about the project - its technological innovations

and the opportunity it offered for 'stepping into' a broadcast world. The participants were encouraged to believe that they would experience an entertainment that combined the production values of television with those of a computer game, and they were therefore disappointed by the speed and responsiveness of game-play that the technology was able to support. Because of expectations formed by games such as *Doom* and *Quake*, the interactors expected an instant response from the on-line world and an immediate recognition of this on the television screen. Yet such expectations were unreasonable, since 'social spaces, most especially ones of the complexity of *Heaven and Hell - Live,* with more than one hundred participants and running so that it could be received on domestic equipment, cannot emulate the speed of computer games' (Wyver 1998, 5).

The interactors immediately expressed their disappointment with the show's pace: within minutes of the show's opening, one participant was typing 'This is slow'. From then on, the 'lost souls' resisted the position of game show assistants that was expected of them; instead of coming up with suggestions to solve the riddles, they occupied themselves with making alternative comments and suggestions, using the opportunity to 'appear on TV'.

The slow pace was made even more problematic because there was a mismatch between the pace of TV and the internet. While the TV content

was fast-paced and relied on visuals whose presentation involved rapid transitions produced by camera movements and cuts between cameras, the on-line worlds had a far slower pace; each interaction took between five and ten seconds to register on the TV screen. This time-lag quickly confused both viewers and interactors (Wyver 1998, 4).

These problems with the show's pace were compounded for the interactors by their inability to interact socially with one another. After the success of community-building in *The Mirror*, it had been hoped that *Heaven and Hell - Live* would develop a strong sense of community through teamwork and collaboration (Wyver 1998, 6). Yet the programme did not offer any of the community-building activities that had been so successful in *The Mirror* - no conversations or debates, sharing of ideas or artefacts. Nor was time allowed for the interactors to communicate with the production team so that they could gain a sense of partnership in the show's development, as they had done in *The Mirror*. Wyver concluded that 'the key failure of *Heaven and Hell - Live*, and the most obvious difference between it and *The Mirror*, was its failure, in advance of the broadcast, to build and develop a community':

> There was no time to build a sense of community within the space, to collaborate with the users in any way, and to explain the conception of the project and its aims. Nor did any effort go into rehearsing or in other ways developing the group of lost souls. The production simply assumed that they would perform on cue - and that they would conform to the script and schedule prearranged by the producers. Far too much was expected from them, and far too little in the way of information and explanation was provided to them (Wyver 1998, 7).

A booklet of instructions about the games had been included with the CD-ROMs sent to the 'lost souls' before the show, and background notes and explanations had also been included on the Channel Four web-site. However, the information only reached the interactors two or three days before the broadcast, and it was clear that this information should have been sent out to the participants much earlier if they were to have developed the necessary skills to participate in the worlds. Furthermore, the programme itself should have contained a much more detailed introduction to inhabited TV, but the concept was glossed over in Dante's hasty introduction to the programme:

> 'Welcome to *Heaven and Hell - Live!* I am Dante, your virtual host for the evening. Over the next hour you'll experience a rather unique and rather risky form of entertainment. We believe we're right in saying that no-one else has tried to do what we're doing here - because what you're seeing is a live broadcast from a shared virtual world on the internet'.

There was no sense of community between the interactors in *Heaven and Hell - Live*, Wyver realised, because far too little time had been allocated to explaining the concept of inhabited TV and the games:

> It is undoubtedly the case that the overall sense of what was happening, together with the rules for the individual games, should have been explained more fully [...] More sectioning and sign-posting would have been helpful throughout, with on-screen explanations throughout. Overall there should have been far more guidance and preparation for the lost souls (Wyver 1998, 6).

If future experiments in inhabited TV were to succeed, he proposed, the production team would have to devise ways of ensuring that the concepts were fully and clearly explained to the interactors.

The importance of clarity in communicating the programme's rationale and content was underlined by the audience's experience of the programme. Just as the interactors had not been given enough time or information to enable them to assimilate the gameshow concept and software, so too little attention was paid to explaining the programme and its games to the audience. For example, the first game was quite straightforward: the performers were supposed to look for parts of a skeleton hidden throughout heaven, hell and purgatory, while the interactors helped them out by solving riddling clues to the bones' location. Yet the game was introduced in the following way by Dante:

> Unfortunately, someone forgot to feed the hell-hounds yesterday and they decided that Rickets should become a dog's dinner. They hid his bones around the worlds and it's these bones that I want Johnny and Angelica to find for me - and I guess for Rickets too. Souls will be awarded to whoever gets to the bones first and fortunately, because the hell-hounds are a forgetful bunch, they've left a clue or two as to where the bones are buried.

This introduction was hopelessly inadequate as an explanation of the game's concept, and so the audience remained baffled.

Other avoidable difficulties were created for the audience. Dante did not identify himself with his on-line avatar, nor introduce the other contestants' avatars, so that the link between the real and virtual world was never made clear. In addition, the producers had decided to give Malcolm Jefferies a female avatar ('Angelica'), and Katie Puckrick a male one ('Johnny'). The transgender re-assignment of identities - and its significance, if any - was left to the audience to work out for themselves: 'The producers believed it to be an interesting and valid reflection on

gender identity in network systems, but it was seen simply as one more unproductive confusion' (Wyver 1998, 4).

Furthermore, the programme presented the audience with an opaque visual code. Problems in the visuals arose because of the innovative camera technology that was being used: the six virtual cameras had trouble in keeping up with the action, so that they sometimes became 'lost' (Wyver 1998, 5). The cameras were often blocked, too, as inhabitants moved in front of them.

In summary, *Heaven and Hell - Live* was beset with problems. The interactors were unhappy about the games' pace and the limited social interactions, while the audience were confused by the narrative and visual aesthetic. Wyver concluded that the show had attempted to encompass too many activities, and to make each of them too complex: 'The conclusion must be that it would have been better to have used a significantly simpler format' (Wyver 1998, 3).

This insight - that *Heaven and Hell - Live* should have been much simpler in form and content - was the key lesson which Wyver took from the project. When, therefore, he began to plan another experiment in inhabited TV - *Out of This World* - he determined that simplicity and structural clarity should be its guiding principles.

3.3 *Out of This World*[84]

When they started work on *Out of This World*, the production team[85] were acutely aware that *Heaven and Hell - Live* had failed, both for the interactors and audience, because of a lack of clarity in the communication of its content. Their work in pre-production for the new show therefore focused on remedying this shortcoming, and they decided that this could be achieved by two strategies.

Firstly, the show would, like *Heaven and Hell - Live*, have a gameshow format, in order to provide a simple, familiar and easily-read form. However, this time the games would be conceptually much simpler and more closely-structured than those in the earlier programme: they would be 'as simple as possible in terms of concept, interaction required and graphical representation' (Benford et al 1999a, 189). Secondly, the mismatch between the pace of TV and the on-line world would be removed by dividing the viewers and the interactors so that they would be structurally separated from one another: they would not be able to interchange their roles, as they had in *Heaven and Hell - Live*. It was hoped that this mechanism would also help the interactors to focus on developing social interactions with one another, rather than watching themselves 'on TV'.

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[84] *Out of This World* was funded by the European Communities' eRENA project, which focused on the development of electronic arenas in which all participants could be mobile and socially active, and in which artistic, social and technical perspectives could be drawn together.

[85] The collaborators were Illuminations TV, Nottingham University's Department of Computer Science, and British Telecom. John Wyver led the Illuminations team; Professor Steve Benford, the Nottingham team; and Graham Walker, the BT team.

The production team defined these strategies as the project's *design principles*, which were 'intended to intended to increase the coherence of the show in terms of its visuals, social interactions and narrative structure' (Benford et al 1999a, 189). It was hoped that these principles would make the programme content as clear and coherent as possible for both interactors and audience.

The narrative that was decided upon during pre-production was reductively simple. A doomed planet in outer space is about to blow up. Stranded on it are two teams of creatures; their goal is to race across the planet, taking part in competitions and navigating a series of obstacles on their way, in order to be the first to reach a space ship and make their escape. While the winners fly away 'out of this world', the team that fails is destroyed with the planet. This narrative was schematised into five parts:

1. Explanatory introduction

2. Game 1 (frog herding)

3. Game 2 (falling fish)

4. Game 3 (quiz)

5. Race to the end and finale

It was decided that the visuals of the show, like the concept, should be as simple as possible. The virtual world was mapped out of five linked arenas - two assembly points for the start and end of the show, and three

for the games. Their design relied on bright primary colours and a clear, schematic layout, in which geometric forms were stencilled against a backdrop of black planetary sky. The avatars, too, were simplistic in design and brightly coloured against the blackness of space.

The production software[86] added to this structural simplicity with a new technical device - the introduction of a system for controlling the movement of the avatars so that they would temporarily lose their freedom to move independently in order to be marshalled together at various points of the programme.

Out of This World was distinguished from the previous inhabited TV experiments in one important way: it was not to be broadcast on TV, but staged as a theatrical performance. The reason for this change was to provide a more controlled setting in which there would be more opportunities to explain the programme concept to the audience and interactors; the production team also thought that, by bringing the interactors and audience together in a single space, they would avoid the technical difficulties caused in *The Mirror* and *Heaven and Hell - Live* by geographically dispersed inhabitants who used all kinds of computer hardware and software (Benford et al 1999a, 190).

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[86] The system was *Massive 2*, developed at Nottingham University: the system supported up to fifteen inhabitants, streamed audio and video, and immersive and desktop interfaces.

There were - after the inhabited television model - four kinds of participation in *Out of This World*. The *performers* were a host (acted by Wyver) who guided the participants and explained the purpose of the show, and two team leaders. The host's main function was broadly analogous to that of a TV gameshow host; he appeared at appropriate points on a large virtual screen suspended at the back of the virtual world in order to inform the teams of the rules of the games and to adjudicate, awarding points and seeing fair play. The two team captains acted as *animateurs* to lead and motivate the opposing teams; they used immersive virtual reality equipment, wearing head-mounted displays that enabled them to see the virtual world and sensors that tracked the positions of their head and hands. They also held virtual 'light sticks' with which they could point at objects or inhabitants by pressing a button. Although the performers would have been 'virtual' to the audience in a broadcast of *Out of This World*, for the purposes of the performances they were actually situated in the theatre space, on either side of the screen: this decision was mainly taken in order to help the audience understand better the concept of inhabited TV, as well as to enhance the entertainment offered to them.

The *inhabitants* consisted of two competing teams of avatars - aliens and robots - played by eight members of the public who had volunteered from the theatre audience. The inhabitants were grouped together as teams, out of sight of the audience: they sat in front of standard PCs with joysticks to control their movement in the virtual world. They wore

combined headphone/microphone sets, and were able to speak over a live audio channel: their comments on the game would become part of the audio mix. The inhabitants were represented in the virtual world as avatars distinguished by colour and shape - green aliens and blue robots. During rehearsal for the show, the decision was taken to separate the teams into women (aliens) and men (robots). The separation was proposed by the director as a way of distinguishing between the avatars she saw on the gallery monitors; it meant that she could identify the appropriate team as its members spoke, and cut to it. The decision was agreed during rehearsals as a pragmatic solution, with little discussion; however, as detailed below, it was to cause difficulties in the programme's reception.

The third layer of participation was provided by the show's *audience*. They were seated in an auditorium, and watched the show on a large screen in front of them.

The project's fourth layer was the *production team* responsible for producing the broadcast output and managing the on-line support system. This was led by Wyver, who oversaw the TV content and operation; and Steve Benford, Professor of Collaborative Computing at Nottingham University, who oversaw the computer systems. In addition, there were a director, who operated, with an assistant, from a conventional TV mixing desk; a world manager, who controlled the software that supported the on-line world, and controlled the avatars at the start of games; and four

camera-men, who operated virtual cameras that captured the action within the on-line world from different perspectives. These cameras were operated by a mouse instead of a panning-handle, and so gave a very different visual style from that of a conventional television camera, offering three hundred and sixty degree movements. Output from the cameras was fed into the mixing desk.

The performances of *Out of This World* took place in Manchester in September 1998 as part of the city's Digital Summer Festival, a programme of exhibitions and cultural events which took place alongside the International Symposium on Electronic Art (ISEA) conference. There were four public performances in the Green Room Theatre during the weekend of 5th and 6th of September.

The project was put together during a two-day 'get-in' immediately before the performances (Thursday 3rd and Friday 4th September), when the complex technological infrastructure was rigged. There were numerous technical difficulties: some computers failed; the transmission monitor had to be replaced; the projector was faulty; there was not enough cabling, and Wyver had to locate and borrow extra cables. As each problem arose, the whole crew was consulted for their different professional and technical perspectives, and a variety of solutions was offered and attempted. Through this collaborative activity, one team was formed out of the two

initial specialisms (television and computing); the work proceeded with good humour and supportive multi-tasking.

By the end of the two days, the project infrastructure had been built on the mezzanine level of the Green Room. There were eight high-specification PCs for the inhabitants; eight SGIs for the performers, virtual camera operators and world management; two immersive VR head-mounted displays (HMDs); a TV mixing desk with seven monitors and two Betacam-SP record/play-in machines; and a digital synthesiser (to play in ambient sound); and metres of cabling that linked the whole system together.

Once the 'get in' was complete, rehearsals of the content began on 5th September. Although she worked from a standard mixing desk, the director (Rena Butterwick) had to develop a camera script through improvisation. Inhabited TV was not a new concept for her, since she had directed *Heaven and Hell - Live*, but she had very little time to familiarise herself with the peculiarities of *Out of This World's* system. Consequently, she came to the first camera rehearsal with a strategy taken from conventional multicamera directing. Each camera was given a different task - two were asked to cover the activities of the different teams; one was to offer wide-angle shots of the location; and the last was to spot relationships between avatars, acting rather like a hand-held camera. During rehearsals (11.00 am, 2.00 p.m. and 3.30 p.m. on Saturday 5th

September), the director spent time developing this strategy with the camera operators (all of whom, as computer scientists, were inexperienced in the role); an aesthetic was developed which included fluid, three hundred and sixty degree movements as well as some pre-programmed 'master' shots of key elements.

The show slowly took shape during these rehearsals. It opened with an introduction by Wyver, who appeared on a virtual screen at the back of the electronic world and carefully explained the concept of inhabited TV. Next, the first game called on the performers and inhabitants to 'herd frogs' together. The performers' avatars were represented as wearing hats with long spikes on them; the inhabitants had to move towards the frogs and herd them towards the performers. Whenever they got close to a frog, it leaped away; the trick was to make it jump high enough to impale itself on the hat spikes. The team with the more impaled frogs at the end of the game was the winner.

At the end of the game, the teams were brought together by the software system manager for the next game; as they reassembled, Wyver appeared on the virtual screen and carefully explained the premise of the next game to them.

In game two the teams had to demonstrate their team-working ability by grouping together in order to form an 'aggregate avatar'. The game

arena was festooned with virtual fish hanging beyond the reach of any individual avatars. The avatars had, therefore, to group themselves into towers tall enough to enable them to reach the fish and knock them down. Points were awarded for each fish that fell. At the end of the game, as before, the teams were moved forward by the system manager while the host explained the next game in detail. The third game was one of 'magical hoops'; the task was to form aggregates of avatars which collaborated together in order to lift the team leaders through a succession of rotating circles. The fourth game was a quiz, which asked the interactors to answer questions about films and computer games.

The final game was a 'race for space' in which the avatars had to group together on a space buggy and jointly guide it across the space terrain towards the space ship; the first one there would escape.

During rehearsals, Wyver became concerned about the absence of conventional television planning paperwork: there were no scripts, schedules or running orders, while, in contrast, the computer team was working from a meticulous technical script. As a result, he devised and typed up a running order which laid out the show schematically, as is conventional in TV production (see appendix). From then on, this became the organising schedule for the whole team during the performances.

As the rehearsals became smoother, the production team's roles began to devolve: the computer team focused on making sure that the equipment worked reliably, while the TV team focused on selecting the visuals and audio feeds, ensuring that the whole team was working towards the same goal, and that the show would go 'on air' at precisely the right time. The discipline of time-keeping (crucial in TV production) became increasingly important: Wyver insisted that the rehearsals ran, as in television, exactly to time and schedule. This concern for time-based schedules was never more apparent than when he (on Friday evening, before the first 'stagger-through', or rough rehearsal of the content) angrily interrupted a crew meal-break to summon the computer team back to the Green Room: 'You're fifteen minutes late. This is serious. You've got to learn television time', he told them. The computer team were baffled by this reprimand, since they had been perfectly prepared to carry on working all evening with no meal-break, and it had only been at Wyver's insistence that they had stopped to eat. One of them told me: 'I don't know. They make us stop, then all we do is go for a pizza'. One of the functions of the rehearsals was to make the whole team familiar with television's insistence on organised work periods and near-perfect time-scales: there were no more late returns after this one.

Once the show was running reasonably smoothly in technical terms, the actors who were to perform as team-leaders arrived and were briefed by Wyver. Since there was no script, they were asked to

improvise, and both were happy to perform in this way. They then began to run through their actions and test their VR equipment. They were asked to stand at the front of the auditorium, on either side of the screen, as a way of enabling the audience to understand more clearly how their part of the programme was being generated, and of adding to the visual content of the show. Wyver was not happy with this arrangement, for he felt that the two performers should, if the inhabited TV model was followed rigorously, have been positioned on the mezzanine level with the interactors. However, despite his anxieties, he maintained that the audience would understand that this was only a way of demonstrating the possibilities of the system more clearly.

At the end of this period of intensive technical preparation and rehearsal, although a few technical problems remained,[88] the show was ready to go 'live' at the scheduled time. In the event, the first performance (scheduled for 6.30 p.m. on Saturday) did not start on time: about ninety people - more than had been expected - arrived, and there were delays at the box-office.[89] As they arrived, audience members were invited to take part as interactors, and eight volunteers were easily found. The show finally started at 6.50.

Once the audience and interactors had settled into their places, Wyver went out into the auditorium to give a short introduction to the project.

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[88] For example, the audio feed from one of the performers was faulty.
[89] The show was ticketed, at a price of £5.

The aim of his presentation was to explain the purpose of the experiment, to warn the audience of the complex and potentially unstable technical infrastructure, and to make them feel as involved as possible. He emphasised the innovative nature of the project, saying that 'What you are going to see is a vision of the future of television'. However, he explained that as an experiment it could all go wrong - 'Rather like a clash in a grand prix race, that could be the most interesting bit!' He invited the audience to stay on for a while after the show to give the production team some feedback: 'We need to know how this goes down with an audience. Don't worry, we've got thick skins!' They were also invited, after the show, to go into the mezzanine gallery where the crew and inhabitants were positioned so that they could see the technical set-up.

At the same time, Steve Benford was giving a similar briefing to the interactors. Again, the experimental nature of the project was emphasised: 'If this was for real, you'd be connected to the internet', he explained. The teams were urged to 'be entertaining' in what they said, since their comments would be fed in to the audio mix for transmission. The interactors were then given the opportunity to familiarise themselves with the joystick controls and interface design by playing a game of virtual football. Most of them were experienced gamers, and several of them knew members of the computer science team: they set about their 'practice' with gusto.

When Wyver and Benford had returned to their positions on the mezzanine, the programme began.

The first performance of *Out of This World* was a comparative success. The technology worked predictably, the performers rose to the occasion, and the content unrolled according to plan. The audience responded well to the show: there was clapping and some laughter, and in the discussion chaired by Wyver after the performance, it was clear that the concept of inhabited television had won a generally positive response. One aspect of the show's conception, however, attracted disapproval. Why, it was asked, did the team decide to use a cliché-ridden game show format, which 'seems too derivative and rigid, and out of keeping with the fantasy elements of the rest of the project'? Wyver explained the need to keep the concept and structure as simple as possible, and this reason was accepted.

The interactors who attended this feedback session were unanimously supportive of the project concept. It was notable, however, that they were mainly interested in the project as a technological *tour de force* - a response which may be explained by understanding that the interactors were volunteers who represented the more technologically-literate and computer-confident of the audience.[90]

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[90] The feedback from viewers and interactors is listed in full and discussed in chapter 4.

The second performance, too, went according to plan: the audience was smaller (about forty), and their feedback was generally positive, although the game-show form again attracted criticism. For this performance, I took part as an 'inhabitant', so that I could experience the show from an interactor's perspective. The focus of attention during this activity - for me, and (as I discovered when I talked to them after the performance) for the other interactors - was not on teamwork, but on one's individual progression through the game as one learnt to control the joystick and discover ways of moving quickly and adroitly through the virtual landscape.

By the time of the third performance, the show was working predictably well in technical and visual terms. An audience of about ninety watched the show, and stayed on after it had ended for the discussion. However, as soon as Wyver took his position at the front of the auditorium, it became apparent that this audience had hated the show.

One of the main foci of their dislike was the show's structure: they described the gameshow format as 'derisorily naive - to the point of stupidity'. One audience member expressed her dislike of the format and the 'crudely simple games' because they made her feel patronised. Others complained about the theme - the race to destruction in which the losers were blown to smithereens before the audience's eyes.

A third focus of complaints was the fact that the audience had been separated from the interactors, and thus from any possibility of participating actively. Their position as viewers, they complained, 'had not challenged television's limitations, but re-articulated them'. Where was the 'new kind of relationship with television, offering more accessibility and creativity' which Wyver had promised in his introductory talk? The programme offered no new insights into different relationships between producers and audiences: 'Tell me exactly how this is supposed to break through the old barriers of television?' one viewer asked.

There was a strong sense that the viewers had been overlooked in the project: 'The needs and sensibilities of an audience are not taken into account by the kind of content that's on offer here' it was asserted. Overall, the reception was overwhelmingly hostile. 'If this an experiment', one audience member asked, 'what are your criteria for failure?'

Wyver attempted to refute each of these criticisms as it arose. He justified the gameshow format on the grounds of clarity, and tried to explain the pragmatic reason for the division of the inhabitants' teams according to gender. However, his responses did not satisfy the audience, who were not interested in technologically-motivated rationales. What they saw as gross failures in content provision, and the betrayal of the concept of 'a new kind of relationship with television, offering more accessibility and creativity' were the issues that they wanted to address.

Wyver was shaken by the attack,[91] and when the audience had left, I had the opportunity to ask him about the accusations. He was astonished at the intensity of the hostility aroused by the project, but accepted that the intention to provide a clear structure for the audience had backfired and had, instead, produced a form which was overly-structured and simplistic.

Following this hostile reception, there was some trepidation amongst the team as the fourth performance approached. However, the event was something of an anti-climax. There was a very small audience of about a dozen, the performance went smoothly, and discussion was minimal and politely positive.

One press review of the show appeared: Adam Barnard of *The Times* had attended the first performance, and his review appeared on Wednesday September 30 1998. The review communicates something of the tension of the run-up to the performances:

> John Wyver is nervous. As leader of Illuminations' 'Out of This World' project, he has spent more than a year preparing for this moment. [...] The potential to break the barriers of reality is enormous but the maxim that the more technology used, the more there is to go wrong, rings in his ears.

The concept of inhabited TV was broadly accepted in the review, and Barnard suggested that the presentation demonstrates how it could

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[91] 'I can think of few occasions when I've felt as publicly exposed and attacked', he wrote in an e-mail to the production team in November 1998.

eventually be possible to generate television programmes in an entirely virtual environment:

> The surge of new channels that digital is expected to cultivate - and the corresponding demand for material to fill them - means new technologies like this stand a good chance of appearing.

However, he was sceptical about the project's outcomes, concluding that inhabited TV is 'intriguing but flawed':

> At this stage, inhabited TV is merely an interesting diversion hinting at greater things. One suspects it will be some time, and several more surreal previews, before the system can generate material strong enough for television.

3.4 Inhabited TV after *Out of This World*

In discussions after the performances, the project team agreed that *Out of This World* gave rise to important insights for future research. While they had been pleased with the technical advances that they had been able to demonstrate, and, overall, with the role of narrative structures in rendering the programme comprehensible, they also acknowledged the force of the audience's criticisms, agreeing that the gameshow format and theme should be replaced (Benford et al 1999a, 196).[91] However, they were still mindful of the lessons of *Heaven and Hell - Live*, and determined that further experiments in inhabited TV should maintain an emphasis on the 'design principles' (ibid, 189) of structure and simplicity.

In order to continue research into the design principles' effectiveness for ordering interactivity, it was planned to produce *The Mode*, an inhabited TV programme themed around fashion that would combine TV and the internet through the use of a (real) studio presenter and guests who linked to (virtual) correspondents in an on-line world (*Modeworld*). Another proposed development was *2525*, a depiction of how the world might be halfway through the next millennium, that would be targeted at school pupils aged 15-18 (Benford et al 1999b, 9).

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[91] These conclusions are discussed in full in chapter 4.

The production team took these ideas to a number of broadcasters - BBC Education (which had been the department involved in production of *The Mirror*), BBC Choice (the recently-established digital channel), UK TV (the cable and satellite channels operated by the BBC and the cable operators Flextech), and finally Channel Four. However, all of these approaches were unsuccessful.

Wyver interpreted these refusals as an indication of the increasing prioritisation of commercially-driven programming. Early experiments in inhabited TV had been commissioned because broadcasters had previously been prepared to experiment with new technologies and forms; however, they were now focused on commissioning projects which could generate revenue, and inhabited TV was not seen to possess this potential (Benford et al 1999b, 8).

The channels' commissioning editors saw their decisions differently. Feedback on the proposals from the BBC stated that the inhabited TV model had been rejected because the BBC was committed to developing enhanced TV forms that retained separate TV and internet content; however, inhabited TV was seen as 'a marginal activity with few clear benefits and considerable problems relating particularly to governance of activities within the virtual world' (Benford et al 1999b, 100).

The commissioning editor for Channel Four, Jonathan Kingsbury, said that he had rejected the proposals because of his concerns about inhabited TV's reception model - he was unhappy about the audience's role. Kingsbury explained his decision in an e-mail to Wyver:

> I feel that the fundamental nut which needs to be cracked is not why people should want to take part - it obviously is a lot of fun for people playing and totally immersed - but why television viewers should watch. We ask this question of everything that gets broadcast here at Channel 4 (I hope), and inhabited TV should not be an exception. I've thought about this a lot overnight and the question I keep coming back to is what makes a games show (for example) compelling television to those not taking part. Surely if inhabited TV can try to meet those attractions it'd be a long way down the road to being a truly innovative event (Benford et al 1999b, 10).

Sophie Walpole, responsible for Channel Four's on-line projects, took a corporate view on the issue: 'Personally, I am interested in 3-D worlds and in the notion of inhabited TV but I just don't know where the 'fit' is with C4 in order to drive your ideas forward' (Benford et al 1999b, 11).

Following these rejections, the production team set aside *The Mode* and reworked *2525* into a concept that they called *Ages of Avatar*.[93] At last, a broadcaster - BSkyB's [.TV][94] - commissioned this project.

Ages of Avatar consisted of a six-part series of five-minute programmes that linked into four on-line worlds representing the

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[93] The collaborators were Illuminations TV and Nottingham University.

[94] Pronounced *dot TV*. The channel describes itself as 'the first and only UK channel devoted entirely to new technology as an essential part of daily life. In a world of increasing technological sophistication, consumers require reliable technical information and credible advice, delivered in an easy to understand informal and entertaining environment' (Benford et al 1999b, 11).

development of human experience;[94] there were quizzes involving text chat, social 'meet and greet' sessions, and the chance for interactors to place photos of their avatars in a virtual gallery. It was planned to include edited highlights of these activities in the TV programmes (Craven et al 2000, 179).

The project was extensively advertised on BSkyB [.tv] and elsewhere on BSkyB.[95] Yet although the on-line sites were supported for four months, they attracted only a tiny on-line community: the researchers calculated that there were only forty-three regular 'inhabitants', and the core community was tiny - ten to twenty individuals (Craven et al 2000, 183). Because of the lack of interest, BSkyB did not re-commission the project.

Ages of Avatar were developed into one further experiment, *Avatar Farm*, a theatrical performance that was 'webcast' (transmitted live on the internet); the performances were based around a story outline in which a group of interactors discover that their homeland has been occupied by capricious gods who turn them into slaves and force them to work at various tasks.

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[94] The four worlds represented were *Kindergarten* (infanthood), *Behaviour Shift* (adolescence), *Trade and Power* (adulthood), and *Nirvana* (old age).
[95] There were 94 x 30 second promotional slots on [.tv], and 72 x 30 second slots on Sky Sports, Sky One, Sky News, and Sky Movies (Craven et al 2000, 184).

Performances of *Avatar Farm* took place on the weekend of September 17-18 2000 at Nottingham University, and following the event, the researchers expressed themselves, in the main, satisfied with the outcomes. The technical platform had been robust and innovative; the interactors had said that their experience had been fairly engaging; and there had been sixty 'hits' on the webcast (Craven et al 2000, 192). However, the researchers admitted that the production's main ambition - the delivery of a narrative that interactors *and* viewers would be able to understand - was not achieved. They concluded that *Avatar Farm* was subject to the same difficulties of comprehension for the audience as *Heaven and Hell - Live* and *Out of This World* had been:

> Reviewing the live web-cast output, we did not believe we managed to create a coherent linear story from the event, one that a viewing audience would have been able to follow (Craven et al 2000, 193).

Avatar Farm was the last experiment in inhabited TV to be mounted; while other projects have been proposed,[96] none of these has so far come to fruition. At the time of writing, therefore, inhabited TV can be situated historically as one of many experimental forms in the late 1990s that explored ways in which TV and interactivity might be interrelated: experiments that cast useful light on potential relationships between emergent and established media, but that did not establish creatively or commercially viable new media forms.

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[96] For example, Wyver proposed a project called *The Perils of Pompeii*, a TV programme accompanied by a virtual creation of ancient Pompeii just before the eruption of Vesuvius, which would allow viewers to enter the site and explore it virtually (Wyver 2000, 11).

3.5 Summary

The producers of the practical experiments in inhabited TV had set out to test the proposal, put forward in 'Audience Participation' (1996), that it was possible to create a genuinely interactive form of TV by combining the internet and television broadcasts. Yet instead of showing ways in which this proposal could be implemented, the experiments demonstrated that attempts to combine narratives and the internet give rise to significant problems.

The producers learnt from *Heaven and Hell - Live* that it was difficult to create a clear, comprehensible narrative at the same time as allowing interactors to intervene in the storyline. In order to address this problem, they attempted in *Out of This World* to contain and control interactors' contributions by developing formal narrative structures and separate layers of reception for viewers and interactors. Yet these efforts, too, were strongly criticised by audience members, who complained that narrative structures were inappropriate in an interactive medium, and that the structural separation of viewers and interactors removed inhabited TV's key benefit - the opportunity for viewers to become interactors. This was not the new kind of iTV that had been promised, but one that reiterated conventional programme formats and reinstated established reception modes.

On one hand, then, the introduction of interactivity into TV narratives led to shapeless, chaotic content that quickly became incomprehensible for the audience: while on the other hand, attempts to resolve this problem and to clarify the programme content by organising interactors' contributions into structured narratives led to restricted interactivity for the interactors and a reduced role for viewers. Because of these conflicting outcomes, the experiments were not able to demonstrate a practical way in which the concept of inhabited TV might be developed; and so the experimental outcomes appear to lead to the conclusion that the concept of inhabited TV was impracticable, and that its ambition - delivering a genuinely interactive form of TV that gave viewers creative ownership of programme content - was unrealistic.

However, before this negative conclusion is drawn, it is necessary to consider an alternative possibility. The concept of inhabited TV was developed into practical productions on the basis of a key assumption: that a set of *design principles*, including a strict adherence to narrative structures, was essential for organising and clarifying the programme content of an interactive medium (Benford et al 1999a, 189). This assumption remained a central tenet in successive experiments in inhabited TV; its validity was asserted and re-iterated in discussions of the findings from *The Mirror*, *Heaven and Hell - Live*, and *Out of This World*. However (as has been argued in the critique of the association

of structural approaches to narrative and interactivity above), the association of narrative structures and interactivity is highly questionable. Might it be possible, therefore, that the experiments failed because they were founded on a damaging assumption?

In order to explore this possibility, the most telling and comprehensive evidence of the problems that arose from inhabited TV's attempt to structure interactivity within a broadcast narrative must be investigated. The next chapter therefore goes on to analyse in detail the audience's and interactors' responses to *Out of This World*.

Chapter 4

Analysis of the case study

4.1 Introduction

This chapter analyses the audience's and interactors' comments about *Out of This World* in order to enable the problems that arose within the project to be investigated.

The chapter starts by presenting the comments (collected in feedback sessions after each performance), so that the range and scale of the problems can be discerned. It goes on to discuss the production téam's mainly positive conclusions about this feedback, and suggests that their sanguine conclusions are undermined because they inaccurately and inadequately reflect the audience's responses. Close analysis of the feedback shows that it points to a serious shortcoming in the production of content for the programme - that the over-reliance on narrative structures led to simplistic content and the disengagement of the audience, and fatally undermined the project's ambition to turn viewers into interactors.

The significance of this finding is substantiated by comparing *Out of This World* with other practical experiments that have explored combinations of narrative and on-line interactivity. The outcomes of these experiments are found to provide important evidence about relationships between narratives and interactivity, and to corroborate

the audience's criticisms of the role of structures within *Out of This World*.

The chapter concludes by summarising the findings to which this analysis of the feedback to the programme has given rise.

4.2 Presentation of feedback to *Out of This World*

This section presents the comments made by the audience and interactors about *Out of This World*, which I recorded during the sessions immediately after each performance when Wyver came out to the front of the auditorium in order to lead a discussion about the show. Each of these sessions lasted around half an hour.

The four feedback sessions differed markedly in tone, and the feedback is presented chronologically so that the general tenor of each can be traced. In the interest of clarity, the feedback is subdivided into positive and negative comments.

It was notable during each of these sessions that the audiences' and interactors' responses were consistently different. While the audiences expressed their opinions vociferously and were forthright in offering negative criticisms, the interactors' responses were less frequent and mainly positive. This difference can be ascribed to the fact that the interactors represented, in the main, the technophilic section of the audience - they were mostly interested in the experiment's technical achievement, which, they agreed, was remarkable. In order to differentiate their pattern of responses from that of the viewers, the interactors' feedback is brought together at the end of the presentation of findings.

Summary of feedback sessions for *Out of This World*

Audience feedback

Saturday 5th September: performance 1

Positive responses

- It's an interesting idea
- Most of the games were easy to follow
- It was interesting. It was wild!
- The actors worked really hard - they were endearing
- You'd bought my loyalty, so I had to enjoy it![98]

Negative responses

- The fish game was boring
- Why did you use a game show? It's not very imaginative
- I had difficulties with you copying a gameshow. It's just an established format
- Why did you hold on to TV conventions? Why didn't you step outside them?
- I found the cutting from one point of view to another difficult to follow
- I couldn't identify with the robots. I tried to, but the cutting stopped it
- I had problems with the characters. The expressions and gestures are missing
- Expressions are a problem with the avatars. Perhaps you could texture-map expressions onto them. When they win, they should behave more eccentrically. That might bring them closer
- The design is very bare - it has nothing to offer visually
- Even compared with TV, the content is superficial and banal
- It's a simple format - but you can put crap on TV

[98] A reference to the fact that the audience had to pay £5 for the performance.

Saturday 5th September: performance 2

Positive responses

- It was quite clear to follow: I could understand the games
- It seemed to be like a TV show - that's what it was structured like
- It really does offer an interesting vision of what TV might be like in the future

Negative responses

- Why did you have the audio from the robots and aliens up at the same time? In a gameshow you would mix the sound so that you could hear both of them
- I was straining to hear what people were saying
- Why did you copy a gameshow? I think that's a mistake - it's too dull
- Why do a gameshow? It's got a narrow age-range
- Such a closed form is a great paradox in a very open technology
- It's a very closed form. There's no time to get involved with the world and what is going on
- What about navigation? What about exploration? There's too much control
- Why should an audience *want* to watch material generated from inside an on-line world unless they have had a hand in creating it?
- There is no story, just a series of blocks
- I understand why you wanted to use conventions. But you could have looked at other conventions
- I was upset about the ending. I didn't like to see one team consigned to oblivion
- The frogs were too complicated
- It was difficult to follow the shifting viewpoint: the sounds and voices were hard to follow
- I didn't like the cutting too much - it was just too fast, it made me dizzy
- The point of view kept jumping all over the place. I couldn't relate bits of the world to one another
- There was too much happening. I couldn't work out what was supposed to be happening

Sunday 6th September: performance 3

<u>Negative responses</u>

- Why didn't you do something which stepped outside of TV conventions?
- I hated the 'playschool' tone of the leaders. It was really patronising!
- The male/female split of the teams is stereotypical
- It's insulting
- It was sexist - the way there were two sexes
- The performances are not strong enough to hold up as a piece of theatre
- The frog-impaling game is sickening
- The games are appalling - it's a subsensitive piece of work
- It's a betrayal of the idea of interactivity
- The needs and sensibilities of the audience are not taken into account by the kind of content that's on offer here
- It's like a student project - it's shocking
- The structure's simple to the point of stupidity
- The form is derisorily naive
- I've got to take issue with the way content is controlled within a 'bottom-up' medium
- There's no real understanding of audience passivity - it doesn't show any new ideas about how we might break the hold of technology, the subject/object position of TV
- What opportunities are there for the audience to take part?
- This replicates existing barriers for an audience
- If this is an experiment, what are your criteria for failure?
- Science fiction is a male domain. You've disappeared into the technology

Sunday 6th September: performance 4

Positive responses

- I could follow it - it was difficult at times, but mostly, it was an interesting concept
- The technology is remarkably complex
- The subject matter is simplistic, but the technology is interesting

Interactors' responses: all performances

Positive responses

- It was good - a really interesting idea
- It's a fun way to die!
- It played like a game - a simple game, but I could follow what was supposed to be happening
- The technology is interesting - complex, but it seemed to hold up

Negative responses

- The frog game was too fast and confusing
- I couldn't understand all the games - I couldn't see what my team were doing

4.3 Critique of the production team's analysis of feedback

The production team discussed the outcomes of *Out of This World* in meetings and by e-mail during the weeks following the performances. Their discussions focused on two areas - the project's technical achievement, and the development of programme content.

The team concluded that the technical achievement had been remarkable. Despite the complexities involved, television and computer technologies had been successfully integrated to provide an efficient and reliable platform - a success enabled by effective collaborations and communication between the computer scientists and TV practitioners. The team's overall conclusion was that the technical innovations had enabled them to create a fast-paced and coherent inhabited TV show for the first time (Benford et al 1999a, 196). Wyver, too, wrote of his satisfaction about the technical achievement - *Out of This World* was, he wrote, 'an important and pioneering experiment':

> Overall, I think everyone is delighted with what we achieved. Technically, the (very complex) system behaved exceptionally well, audiences laughed and cheered, and we learned an enormous amount. Personally it was also very satisfying, in a way that sometimes now television productions tend not to be - perhaps because I was so directly involved, from shifting tables at the start to being the event's host (Wyver, team e-mail, November 1998).

The team were generally positive, moreover, about the programme content. The formal 'design principles' and simple narrative structures

had led to games that were clear and playable for the interactors, while the audience, too, had found that the broadcast output was coherent and entertaining - they had laughed and applauded frequently during the shows. In particular, the software management system that had allowed the interactors to be marshalled into new positions at various points throughout the narrative had been successful - the team judged it to be 'probably the most positive outcome for *Out of This World*' (Benford et al 1999a, 193).

Because the content provision had been so successful, the team deduced, the decision to structure the programme with strong, formal narratives had clearly been a good one, and narrative structures should retain a central role within future projects in inhabited TV. The key insight, they concluded, was that 'in short, constraints can be enabling too' (197): this was the central lesson that should underpin the experiments' extension into the commercial environment (ibid).

In addition to these positive conclusions, however, the production team acknowledged that the programme content had given rise to some problems for the audience. They highlighted three particular areas of difficulty.

The first of these was that the avatars representing the performers on-screen had lacked individuality and expressivity, so that the

audience had not been able to identify with them as 'characters'. The second problem was the lack of a narrative 'backstory', which might have explained matters such as why the teams were to be found on the doomed planet, how long they had been there, and what had happened previously; because of this lack, it had been 'difficult to establish an interesting dialogue between the performers and inhabitants and to improvise interesting content around the framework of the show' (195). The third problem was the gameshow format that had been used to structure *Out of This World*: audience criticisms of the format 'raised the question of the extent to which inhabited TV should mimic existing TV formats versus the extent to which it should introduce new formats and narrative structures' (195). The production team concluded that greater attention needed to be paid to developing appropriate formats and content for the new medium before it could become truly engaging (196).

The team felt that it was important to resolve all three of these problems for future inhabited TV projects, and spent a considerable amount of time discussing them. The avatars' lack of personality, they admitted, arose from the *Massive 2* software, which restricted the development of detailed features and subtly-represented gestures in avatars. Some of the team suggested that this technical shortcoming might be alleviated in future projects by including a television scriptwriter in the production team at an early stage in development; a

scriptwriter would also be able to provide a narrative 'backstory', so alleviating the second of *Out of This World's* problems.

The third problem that the production team identified was the choice of format on which they had modelled the programme. They agreed with the audience that the gameshow format had proved inappropriate within this context, and future experiments should explore alternative forms: 'we strongly agree with those who questioned the gameshow format and existing TV formats in general', they conceded (139).

However, this evaluation of the experiment is undermined because it does not reflect accurately enough the audience feedback. In the first place, the category that the production team termed 'programme format' can be seen to subsume four separate issues that arose in the feedback: concerns about the way in which the narrative was structured; the gameshow model; the theme; and the visuals and audio.

Moreover, one of the problems that the team felt was important (the lack of a back-story) was not raised in the same way as the other two: it was not mentioned during the audience/interactors' feedback sessions, but by the *performers*, during an informal team meeting that took place after the first day's performances. The actors were asked about their perspectives on the event so far, and one of them said that

she was finding the improvisations difficult, since she did not know her character's history, or the reasons for her presence on the space station: she was anxious about the 'motivations' for her performance. This was the only time that this issue was raised; none of the audience and interactors identified 'back-story' as a problem, and it should therefore be distinguished from the rest of the feedback.

If these changes to the production team's categories are taken into account, a more extensive list of problematic outcomes in *Out of This World* can be identified. Instead of three areas (programme format, expressivity of the avatars, and back-story), *six* areas of concern were raised by the audience: these were the narrative structure; the game-show model; the theme; the audience's position; the visual/audio aesthetic; and the expressivity of the avatars. One additional area was raised by the performers: the lack of a back-story.

The feedback to *Out of This World* is, accordingly, categorised under these headings in the following section.

4.4 Categorisation of feedback

1. Narrative structure

- Most of the games were easy to follow
- It was quite clear to follow: I could understand the games
- It seemed to be like a TV show: that's what it was structured like
- I could follow it - it was difficult at times, but mostly, it was an interesting idea
- The structure's simple to the point of stupidity
- The form is derisorily naive
- There is no story, just a series of blocks
- Such a closed form is a great paradox in a very open technology
- It's a very closed form. There's no time to get involved with the world and what's going on
- What about navigation? What about exploration? There's too much control
- I've got to take issue with the way content is controlled within a 'bottom-up' medium
- It's a simple format - but you can put crap on TV

2. Gameshow model

- Why did you use a gameshow? It's not very imaginative
- I had difficulties with you copying a gameshow. It's just an established format
- Why did you hold on to TV conventions? Why didn't you step outside them?
- Why did you copy a gameshow? I think that's a mistake - it's too dull
- I understand why you wanted to use conventions. But you could have looked at other conventions
- Why didn't you do something which stepped outside of TV conventions?

3. Theme

3.1 The focus on death

- I was upset about the ending. I didn't like to see one team consigned to oblivion
- The frog-impaling game is sickening
- The games are appalling - it's a subsensitive piece of work
- Even compared with TV, the content is superficial and banal

3.2 The predominantly male theme

- Science fiction is a male domain. You've disappeared into the technology
- The male/female split of the teams is stereotypical
- It was sexist - the way there were two sexes

4. Audience role

- Why should an audience *want* to watch material generated from inside an on-line world unless they have had a hand in creating it?
- There's no real understanding of audience passivity - it doesn't show how we might break the hold of technology, the subject/object position of TV
- This replicates existing barriers for an audience
- The needs and sensibilities of the audience are not taken into account by the kind of content that's on offer here
- What opportunities are there for the audience to take part?
- It's a betrayal of the idea of interactivity

5. Visual/audio aesthetic

5.1 Visuals

- The design is very bare - it has nothing to offer visually
- I found the cutting from one point of view to another difficult to follow
- It was difficult to follow the shifting viewpoint: the sounds and voices were hard to follow
- I didn't like the cutting too much - it was just too fast, it made me dizzy
- The point of view kept jumping all over the place. I couldn't relate bits of the world to one another
- There was too much happening. I couldn't work out what was supposed to be happening

5.2 Audio

- Why did you have the audio from the robots and aliens up at the same time? In a gameshow you would mix the sound so that you could hear both of them
- I was straining to hear what people were saying

6. Expressivity of the avatars

- I couldn't identify with the robots. I tried to, but the cutting stopped it
- I had problems with the characters. The expressions and gestures are missing
- Expressions are a problem with the avatars. Perhaps you could texture-map expressions onto them. When they win, they should behave more eccentrically. That might bring them closer for us

7. Back-story

- Why were we all there? What had happened before? No-one really said
- The worst thing was having to wear all that heavy gear. But it was really hard to imagine why I was there, and project that in front of an audience

4.5 Analysis of feedback

It is important to start this consideration of the feedback to *Out of This World* by recognising that, despite their many criticisms of the project outcomes, the audience was mainly positive about the *concept* of inhabited TV. The idea of an accessible, responsive form that combined the strengths of television and the internet received general support: a typical comment was that inhabited TV 'really does offer an interesting vision of what TV might be like in the future'. Even the third audience's negative reactions to the performance can be read positively: their assertions that the production team had 'betrayed' the promise of a genuinely interactive and accessible form of TV can be seen to support the concept of inhabited TV that had been outlined by Wyver in his presentation before the show.

However, certain aspects of the performances were strongly criticised. The key concern, which was brought up during each of the feedback sessions, was the structure of the programme. While some of the audience acknowledged that the clearly structured narrative had made the programme easier to follow (they reported that 'most of the games were easy to follow'; 'it was quite clear to follow: I could understand the games'; 'it seemed to be like a TV show - that's what it was structured like'), a significant section of the audience complained that the rigidly-imposed structure removed all potential for narrative subtlety: 'there is no story, just a series of blocks', as one viewer put it.

Three main issues dominated these criticisms of the programme structure. The strict time-frame, whereby each of the programme components was carefully time-limited so that the overall running-time of half an hour was exactly met in each of the performances, was criticised: the viewers thought that this emphasis on truncated time-scales was inappropriate within an interactive form, and that the project would have benefited from lengthier time-frames. 'It's a very closed form. There's no time to get involved with the world and what's going on', one of them remarked.

A second issue relating to the programme structure was the programme's reliance on narrative closures. Not only was the whole programme focused towards a moment of closure - it moved relentlessly towards an apocalyptic ending - but each game had a definite ending. This pattern was emphasised by the fact that, at the end of each game, the programme software took control of the avatars and set them up at the start of the next game, so that there was a hiatus. The audience objected to this emphasis on closures: they felt that it was 'a great paradox within such an open technology'. In the words of one audience member, 'What about navigation? What about exploration? There's too much control'.

The third issue was the role of authorship, which was seen to be over-regulating and authoritarian. The viewers challenged the way in which content was generated in a 'top-down' way within a purportedly 'bottom-up' medium, arguing that this limited the interactors' ability to make significant contributions to the programme content, and that it removed all possibility of interactivity from the audience. 'I've got to take issue with the way content is controlled within a 'bottom-up' medium', one audience member complained.

Overall, the viewers' perception was that the structured approach to narrative had made the show clear and 'followable', but profoundly dull: it was, as one viewer put it, 'simple to the point of stupidity'.

During the feedback sessions, members of the production team tried to parry these criticisms by explaining why a structured approach had been adopted - how they had hoped that the simple, clear narrative would enable interactors and audiences to understand the project concept and follow the games more readily. After performance two, for example, Benford explained that the format had been developed with one goal in mind - 'to steer away from chaos - that was why we wanted to do something very simple'; and Wyver promised that in future developments, inhabited TV would build on *Out of This World's* simple narratives and 'move on to express a deeper narrative quality'. These explanations were understood by the audience, but accepted

only grudgingly: they felt that more attention should have been paid to developing satisfying content in the present project.

These concerns about narrative structures were augmented by a second major area of concern: the gameshow format. Wyver explained that this model had been chosen because gameshows were clearly-structured and familiar, so that they removed one level of difficulty for the audience. However, the audience did not accept this explanation. They argued that the gameshow form was derivative, dull and inappropriate in the context of a project which had promised to experiment and innovate: the production team had 'played safe' and failed to respond in imaginative ways to the opportunities offered by the medium. 'Why didn't you do something which stepped outside of TV conventions?' they asked: 'Why did you use a gameshow? It's not very imaginative'; 'I had difficulties with you copying a gameshow. It's just an established format'.

The third area of concern - the science fiction theme - was, like the gameshow format, seen to be derivative, banal and inappropriate in the context of an interactive medium. Some female members of the audience felt, moreover, that they had been excluded by this subject-matter, and argued that it reflected the predominantly male membership of the production team - 'Science fiction is a male domain: you've disappeared into the technology', one of them complained. Their

concern was increased by the identification of another gender issue - the division of the teams into male and female, and their association with, respectively, robots and aliens. This division gave rise to some of the most vehemently expressed criticism during the third feedback session: it was asserted that 'it was sexist - the way there were two sexes'; and 'the male/female split is stereotypical'.

It was, to me, surprising that the possible impact of the gender division on the audience had not been considered by the production team, so that they were genuinely astonished by the accusation of sexism. For them, the male/female division had been a pragmatic solution to a sound problem, and they did not think that it should have caused difficulties.[100] Wyver tried to explain the reasons for the division: but he found that it was hard to refute the audience's accusation that the production team had become so absorbed by devising clear, readable structures that they had completely overlooked the effect on an audience of programme content delivered via these structures.

The ending of the programme - the escape of one team, and the death of the other - caused problems, too: 'I was upset about the ending. I didn't like to see one team consigned to oblivion', one viewer

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[100] The request for the male/female split was, it will be remembered, made by the female director so that she could more easily identify which of the avatars were speaking, and cut appropriately.

remarked. Some viewers felt that there was altogether too much emphasis on death: they particularly dislike the game in which frogs were made to jump so that they could be skewered on spikes, calling it 'sickening'. The games were judged by some audience members to be crude, brutal and banal: 'The games are appalling - it's a subsensitive piece of work', they said.

These three areas of concern focused on the kind of content that had been developed in *Out of This World*. The fourth area of concern for the audience was the role that they had been allocated in the project's reception. One of the most strongly-felt criticisms of *Out of This World* was that it reinstated the reception mode of television: the viewers complained that the project 'replicates existing barriers for an audience'; 'it fails to break the hold of the technology'. The audience feedback on this issue was especially vigorous, since, in his opening presentation, Wyver had explicitly promised 'a glimpse of a kind of TV which was responsive to its viewers'. Despite this promise, however, the project was structured in a way that prevented the audience from interacting with the programme content. They were strictly segregated from the interactors: both conceptually (they were conceived as two separate layers of reception in the inhabited TV model), and physically (the audience were seated in the auditorium, while the interactors were positioned on a separate mezzanine level). The division had been devised to ensure clear, unambiguous roles for interactors, and in his

response to the audience during the feedback sessions, Wyver was adamant that this aspect of the experiment was appropriately conceived. Inhabited TV, he told the audience, was characterised by its dual reception model - its purpose was to provide different kinds of access for interactors and viewers.

However, in spite of Wyver's reassurances that inhabited TV could and should sustain an audience, the viewers' anxieties about their role were not assuaged. They continued to assert that the key benefit of inhabited TV for members of an audience should be to enable them to contribute to TV content, rather than merely view it, and that, in separating the viewers and interactors, *Out of This World* had 'betrayed' the concept of a new form of interactive TV that was accessible to its audiences. The key question asked about this aspect of the project was 'Why should an audience *want* to watch material generated from inside an on-line world unless they have had a hand in creating it?'

The four issues so far discussed - programme structure, gameshow form, theme and the role of the audience - were raised with considerable vehemence by the audience members, and these were clearly the issues which were most problematic for them. However, they also made an additional number of points.

Several individuals criticised the simplicity of the visual content, complaining that there was none of the visual richness and complexity that should be expected of a televisual experience. The spatial design was flat, bare and uninteresting: it was remarked that 'the design is very bare: it has nothing to offer visually'.

Concerns were also expressed about the pace of the vision-mixing. In feedback after the first two shows, one viewer said that he 'didn't like the cutting too much - it was just too fast, it made me dizzy'; another viewer commented that 'the point of view kept jumping all over the place. I couldn't relate bits of the world to one another'. These concerns were relatively easily resolved when, in response to the feedback, the director slowed the pace of vision-mixing for the second day's performances (she herself was vision-mixing): the slower style seemed to be effective in enabling the audience to achieve a better sense of geography and action, and there were no further complaints about the pace.

Attention was also drawn to the quality of the audio: one viewer asked, 'Why did you have the audio from the robots and aliens up at the same time? In a gameshow you would mix the sound so that you could hear both of them'. The validity of these concerns was acknowledged by Wyver: he agreed that the audio mix had been poorly

achieved, but said that this could be remedied in future projects. 'We've got a lot to learn, we did a rough mix', he admitted.

The poverty of the world's visuals was criticised by some viewers: they complained about the design of the avatars, which had no expressions and only rudimentary gestures - 'I couldn't identify with the robots'; 'I had problems with the characters. The expressions and gestures are missing', viewers complained.

The final category in the list of *Out of This World's* problems - the lack of a back-story - differs from the others because it was raised by the performers. However, it provides additional evidence of the project's failure to develop satisfying, rich narrative content.

In order to consider the lessons that can be drawn from these seven categories of feedback, it is useful to differentiate them into three groups of differing significance. The first group draws together problems that arose largely because of the emergent state of the technology used: the problems with the visuals/audio and the lack of detail in the avatars' design can all be ascribed to an evolving technical infrastructure. The second group is made up of problems that arose because of avoidable mistakes: the production team agreed that the gameshow form, science fiction theme, male/female division of the

teams, and lack of 'back-story' were errors of judgement or omissions that they would be careful not to repeat.

The problems in both of these groups were transitory. Over time, technological advances would make it possible to develop more expressive avatars, and richer visuals and audio, while the production team would be ensure that future experiments would develop more appropriate forms and have less controversial subject-matter.

However, the third group consists of problems that were far more intractable: the structured narrative and formal separation of the audience and interactors into different reception 'layers' arose from the 'design principles' that the production team used to structure the project, and were therefore integral to it.

These principles had been designed to overcome *Heaven and Hell - Live*'s difficulties of content production and comprehension. However, instead of resolving these issues, they introduced another set of problems: while *Heaven and Hell - Live* was marred by chaotic formlessness, *Out of This World* was undermined by an over-emphasis on authorial control and severely reduced opportunities for interactivity. The two experiments therefore gave rise to a conundrum: in the first one, interactivity fatally disrupted the narrative, while in the second, narrative structures, equally

fatally, restricted interactivity. Does this conundrum indicate that the problems of *Out of This World* were insurmountable?

In order to investigate this question, it is helpful to turn to evidence produced by other examples of practical work that have investigated relationships between interactivity, narrative and audiences. There have been very few such experiments, but there are two particular examples that provide useful insights into the key issues raised in *Out of This World* - ways in which narrative and interactivity can successfully be reconciled, and the role of an audience in relation to a medium that incorporates interactivity.

The first of these issues is illuminated by *Habitat* (Morningstar and Farmer 1991), an early experiment in creating narratives within a virtual community. The producers designed a large number of interlinked, cartoon-like environments that could be entered and explored virtually by geographically-dispersed interactors. Over a period of time, the project gained a large, enthusiastic following who began to feel a sense of belonging to the world, identifying with its spaces and the other individuals that inhabited them (298). As the world continued to grow, the producers learned that planning a virtual environment is fraught with difficulties. Faced with the dual challenges of making the technology work and creating and managing the content of the world, they discovered that,

while the demands of technology were 'vicious', they were eclipsed by the problems that were encountered in developing content (284).

The producers were at first clear about way in which content should be produced for the growing community. Like the producers of *Out of This World*, they insisted that, as authors, they should structure and control the narrative, for they believed that this approach would ensure that the on-line worlds were clear and comprehensible. However, to their surprise, they soon realised that, while a structured approach was appropriate for developing software systems, it was entirely out of place in developing fictional content for interactors, and that 'a special circle of living hell awaits the implementors of systems involving that most important category of autonomous computational agents of all: groups of interacting human beings' (285).

As an example of the impotence of structural organisation in *Habitat*, they describe a treasure hunt game called the *D'nalsi Island Adventure*. Confident that the game would be a great success, the producers invested a great deal of time in the game's organisation:

> [The game] took us hours to design, weeks to build, and days to co-ordinate the actors involved. [...] We thought it would occupy our players for days (288).

Yet this investment was wasted, for one player solved the problem in about fifteen minutes. Consequently, 'many players hadn't even had a chance to get into the game. The result was that one person had a

wonderful experience, dozens of others were left bewildered, and a huge investment in design and set-up time had been consumed in an eye blink' (288).

This event provided an important lesson for the producers: they realised that careful planning and organisation are only of limited value in an interactive medium, for while a production team could provide the spaces which give interactors opportunities for interaction, they had little control over what happened in those spaces. Through the *D'nalsi Island Adventure*, the producers came to understand that they should not attempt to structure the interactors' entire experience, but, instead, to concentrate their efforts on designing an initial framework which gave the interactors a context and motive for participating. Within this narrative framework, participants should be given freedom to direct their own activities - to play, explore, or converse with one another, unhindered by externally-imposed rules or overly-constraining structures.

Yet these freedoms did not prevent the development of narratives within the worlds, Morningstar and Farmer realised - instead, they allowed narratives to emerge from *within* the communities in response to the interactors' activities. A particularly instructive example of this kind of narrative development was provided by a scenario that was set in train by an accident.

One of *Habitat*'s most powerful characters was the figure of Death, who was distinguished by two special weapons - a powerful gun and a magic healing wand that could cure any damage which he suffered. One day, Death was injured by another player, and the person who was 'playing' him carelessly forgot to use the magic wand to repair the damage done to his body. As a result, Death died: and his specially powerful gun was immediately stolen by another player, who made off with it and proceeded to run amok (245). This created a dilemma for the producers. How could they stop the destruction? They considered two options whereby, as authors, they could control the player from outside the virtual world. They could either assert their authority as producers and order the miscreant to behave, threatening immediate expulsion from the game if he did not comply; or they could resort to software programming to limit his powers. After some discussion, however, they decided that there was an alternative solution: they could enter into the virtual world as characters and negotiate a return to regularity from within it. Accordingly, they began a conversation with the errant player, and eventually persuaded him to give up the gun; as a result

> an elaborate arrangement was made in the centre of town to make the exchange.[...] Of course word got around and by the time of the exchange there were numerous spectators. [...] The event was a sensation. The Avatar involved was left with a wonderful story about having cheated Death, we got the gun back and everyone went away happy (296).

Habitat's evidence for the autonomy of interactors within an on-line world, and its demonstration of the consequences of their independence, is echoed within more recent examples of work that supports the

development of narratives within on-line communities. *Massively Morphing On-line Role-playing Games* (MMORPGs) are persistent virtual worlds in which thousands of interactors take part; they allow participants to create characters and explore vastly extensive three-dimensional worlds, gathering information about them and collecting artefacts that enable them to increase their powers. *Everquest*, for example, is set in a mythical world peopled by ogres and wizards; players have to outwit and destroy these inhabitants, as well as entering into conflict with one another. The worlds are carefully authored to provide the players with exciting locations and activities and visual stimulation; however, interactors remain autonomous and often disrupt the authors' intentions. For example, in *Ultima On-line* - one of the earliest and best-established graphical MMORPGs, which, at the outset, boasted of its ability to allow open entry to huge numbers of players - experienced players decided that they could preserve their territorial claims and indulge themselves by killing new players as soon as they appeared. The game therefore became, for a time, a closed community, and new entrants only served as sport; it was the players, not the authors, who determined the worlds' development.

These examples suggest that the role of the producer in an on-line world is not to exercise control over the interactors, but to provide an initial scenario that motivates and guides their engagement; as the interactors become more capable and active within the worlds, this original narrative should be displaced by their activity. In Morningstar and Farmer's

words, the producers' role in this context is to *facilitate*, rather than to structure:

> Instead of trying to push the community into the direction we thought it should go, an exercise rather like herding mice, we tried to observe what people were doing and aid them to it. We became facilitators as much as designers and implementors (288).

Habitat therefore enables an important lesson to be learnt about relationships between narrative and interactivity. Relying on narrative structures and authorial control is inappropriate within this new environment: approaches that use narrative to structure an entire work and manage every aspect of interactors' involvement are doomed to failure, since they impose unsustainable restrictions on the interactors' freedoms. This lesson explains why the *D'nalsi Island Adventure* (which relied on the producers' authorship) failed, while the *Death* scenario (which grew out of interactors' involvement) was a success: and it also helps to explain why *Out of This World's* reliance on authored, structured narratives caused such severe problems. This evidence from other practice therefore supports the audience's objections to the closely-structured narratives in inhabited TV, and suggests that the production team made a crucial error in planning the project's content.

While these examples of practice - *Habitat* and MMORPGs - are helpful in enabling the significance of the feedback to the structured narratives in *Out of This World* to be assessed, important lessons about the second key issue raised in the audience's responses to *Out of This World* -

the position of an audience in relation to an interactive work - are provided by another practical experiment, the *OZ* project (Kelso, Weybrauch and Bates 1993).

The *OZ* project set out to explore narrative development in interactive media by using live performers - a group of drama students and a director - to represent various roles in an interactive drama. Some of the students acted the roles of virtual characters within an interactive world; they were directed by an off-stage director who, representing a computer system, monitored the events as they unfolded and set off new events at appropriate times in accordance with a plot outline. [101] Other students were asked to play the role of interactors, responding spontaneously as the scenario unfolded, just as participants would respond to the opportunities offered by an interactive work. The action took place on a small stage; an

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[101] One 'drama' was set at a bus station, and included three characters - a clerk, a blind person (Tom), and a thief (Ned) - and an interactor. This was the scenario: The Clerk was bored with her job and uncooperative with customers. Tom, a professional man in his thirties who was temporarily blinded from recent surgery, was going to his girlfriend's house. Ned was a young thief who needed money. The Interactor was to play himself or herself with this one instruction: buy a bus ticket to a city to attend a relative's funeral (Kelso, Weybrauch and Bates 1993, 5). The plot outline was:
1. The interactor asks the clerk for a ticket. The clerk sends the interactor back to sit down.
2. Tom enters and tries to buy a ticket. The clerk refuses, and sends him to a seat with a pile of forms to fill in.
3. Tom asks the interactor for help with filling out the forms. Ned enters.
4. The clerk announces that s/he is now ready to sell a ticket to the interactor. Ned harasses Tom for money.
5. The clerk announces the interactor's bus. Tom again asks the interactor for help.
6. Ned pulls a knife on Tom.
7. The clerk offers the interactor a gun. The climax of the drama is reached when the interactor is forced to make a choice between taking the gun or refusing it, and using the gun to protect Tom from the thief, or to enable him/herself to escape on a bus (ibid).

audience viewed it from a position below the stage, out of sight of the participants.

The *OZ* project's model of virtual characters, interactors and audience, each with different degrees of involvement in the programme, matched *Out of This World*'s three separate layers of participation - performers, inhabitants and audience. Like the performers in inhabited TV, the virtual characters had the fullest degree of control over the development of programme material; the interactors had limited control over its development - they could contribute content where appropriate, collaborate in games, or socialise with other inhabitants; the audience members did not appear in the virtual world, and were not able to control programme content - they merely watched the performers' and inhabitants' on-line activity.

The debriefing sessions after performances of the *OZ* project gave rise to two findings about the interactors' experiences. Firstly, the performers and interactors had identified completely with the characters they were playing and the moral dilemmas which arose. They found the interactive narrative more powerful than those conveyed in conventional media, since it caused immediate, personal emotions, not vicarious empathy for other characters; the strength of the experience for the interactors lay in 'the power of dramatic presence' (10). The second finding was that the most interesting aspect of the performances for the interactors arose from the

dilemmas that they had to consider:[102] a key discovery was that the 'movement of the story may not be actions in the physical world, but activity in the interactor's mind' (10).

In addition to these findings about the interactors, the project gave rise to an important discovery about the audience's experience of an interactive work. When the viewers who had watched the performance were asked about their reactions, it was found that their responses were in direct contrast with the interactors'. While the interactors had been continuously absorbed by the unfolding action of the play, the audience found the show to be boring and insignificant:

> The observers often became bored and lost track of what was going on. [... They] experienced large blocks of time in which absolutely nothing seemed to happen (11).

These 'large blocks of time' were the periods when the interactors were working out their next move - interpreting events, thinking over possibilities, and contemplating alternatives. For the interactors, these 'gaps' were highly engaging, full of narrative possibilities and dramatic tension; but this internal activity was hidden from the audience, who felt that they were merely observers of a drama whose inner logic was impenetrable to them. For the audience, the *OZ* project was dull and incomprehensible.

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[102] For example, 'the first interactor could not shoot the thief. While he had no problem watching film violence, interactive drama shifted the issue to a personal choice. For him, it became a moral question of whether it was right to shoot another human being. The interactive experience forced him to confront the question' (ibid, 10).

This discovery led the researchers to propose that interactive works, since they foreground active interventions and social involvement, must be experienced in the first person; their activities are largely invisible to viewers - and they cannot, therefore, sustain a separate audience position (11). This important finding supports the audience of *Out of This World* in their complaints about the separate reception positions of interactors and viewers, and suggests that in this respect, the production team had made a second error in the project design.

In summary, the evidence of these other examples of practice corroborates the audience's responses to *Out of This World* in two key respects: it demonstrates the futility of attempts to impose narrative structures onto an interactive work; and it shows that interactive media do not support a separate viewing position.

These two lessons are profoundly important for an analysis of *Out of This World*, for they radically challenge the 'design principles' on which the project was founded. What conclusions can be drawn from these findings? This question is addressed in the final chapter of the thesis.

4.6 Summary

The feedback to *Out of This World* showed that the experiment suffered from significant problems. The audience complained that the programme content was naive and simplistic - in particular, they criticised the authored, 'top down' content and insistence on exact and truncated time-frames. Furthermore, they disliked their separate reception position, which meant that they could not interact with the programme content, and that inhabited TV's promise to enable viewers to become interactors could not be delivered.

This analysis of the audience feedback substantially challenges the production team's conclusion that their structured approach to content production had proved successful in enabling the delivery of comprehensible, coherent content.

Investigating other experiments that have attempted to integrate narrative and interactivity provides further evidence that authored, closely-structured narratives are problematic within an interactive medium, and that a separate audience position is not appropriate in this environment.

The following chapter goes on to draw conclusions from these findings.

Chapter 5

Conclusions

5.1 Introduction

This thesis has explored the operations of narrative within a defined area of interactive media. It has focused on problems arising within the attempt to construct narratives within this new environment, investigating the usefulness of a variety of perspectives from theory in illuminating these problems and examining evidence of the difficulties that arose within a series of practical experiments - the inhabited TV project.

In inhabited TV, television and the internet were linked together to produce a composite form so that TV viewers could become interactors; the medium was distinguished by the fact that interactors' contributions to an on-line site were supported and guided by a narrative framework provided by TV programmes. A series of experiments (*The Mirror* 1997; *Heaven and Hell - Live* 1997; *Out of This World* 1998) was devised to test this concept, but provided overwhelming evidence of the difficulties involved in combining interactivity with a TV broadcast; in particular, it was found that the tendency of interactors to extend a text temporally conflicted with the requirement within a TV broadcast for precise time-scales.

This chapter considers the implications of these difficulties and draws conclusions from them. It is proposed that they arose, in large part, because the project producers were working with restrictive, structural approaches to narrative, and that more successful outcomes would have arisen from an alternative approach, in which narrative is understood to be 'decentred' in relation to interactivity, and to provide a framework that enables interactive responses freely to develop.

It is suggested that the model for content development that was described in the original proposals for inhabited TV (Wyver 1996) can be understood as a form of decentred narrative, but that the experiments deviated from these proposals in important ways. The successful development of the new medium in future experiments would, therefore, require a return to these initial ideas.

It is, moreover, proposed that the dichotomy between reception and production that was instituted in *Out of This World* was highly problematic; in this way, too, the development of inhabited TV in practice deviated from the initial concept, where viewing and producing were understood to be interchangeable.

The chapter starts these discussions by providing a resumé of the main themes that have been considered in the thesis, summarising the findings from its discussions of theory and analyses of practice.

5.2 Summary of main theoretical discussions

The concept of inhabited TV was developed as a way of addressing the perceived shortcomings of existing forms of interactive TV - their tele-centricity and spurious interactivity - and attempted to remedy these failings by establishing an alternative model in which the internet provided a focus for content production and interactors were able to contribute their own material to a broadcast. These core ideas can be seen to reflect key themes that arise within contemporary IM theory: the benefits that are brought by interactivity (Benedikt 1991; Kapor 1993; Rheingold 1993; Turkle 1996), the need to improve conventional forms of television by opening them up to interactors (Gilder 1992; Boddy 1994), and the value of drawing on interactors' own interests and experiences (Robins 1996).

The proposal that emerged out of these themes - the development of a new form of interactive TV that would enable viewers/interactors to generate programme material - gave rise to a central difficulty. Offering viewers/interactors the ability to interact with a programme makes it possible for them to disrupt its content, extending it indefinitely and producing unexpected sequences; the tendency of interactors to expand the time that it takes to complete a narrative is particularly problematic for a broadcast medium that depends upon strict time-scales and exact scheduling. In order to counter this problem, the producers of inhabited TV devised a strategy for

restricting the kinds of contributions that could be made to their programmes - a set of 'design principles' that defined and controlled the interactors' interventions by means of a closely-structured narrative.

The development of this strategy is supported by Laurel (1991), who argues that narrative is a useful restraint for controlling interactivity. She characterises narrative in Aristotelian terms - as organised, shapely, 'of definite size and order' - and proposes that interactivity severely disrupts narrative's orderly processes through its propensity to incorporate indeterminate quantities of material and to extend over indefinite periods of time. The way to achieve a reconciliation of narrative and interactivity, she argues, is to turn to Aristotle for 'a comprehensive theory of form and structure' (36) through which the proliferating shapelessness of interactivity can be controlled. Murray (1997), too, emphasises the new medium's tendency to become distended and slackly organised through the volume of material that it includes - she terms this its 'encyclopaedic' quality (83). She suggests that interactors' contributions should be controlled by formal means, and advocates Propp's narrative functions as a kind of 'algorithm' for developing simple narratives: their reductive simplicity is appropriate in relation to media such as computer games and MUDs that are characterised by basic, repetitive narrative sequences (198).

These proposals are challenged in the thesis, which argues that formal concepts of narrative are deeply antipathetic to a medium that is characteristically 'real-time', open and provisional. While, according to structuralist approaches to narrative, narrative time belongs to the past (Martin 1986), interactivity brings about a lively sense of present-tense involvement and immersion in events as they unfold. The new media resist, moreover, the traditional association of narrative with closure (Todorov 1990): computer games are more concerned with repetitive, cyclic activities than the resolution of complex issues or psychological motives, while the internet often seems not to involve closure at all, leading to disconnection rather than resolution. Narratological concepts of authorial control (Scholes and Kellogg 1966; Metz 1974; Chatman 1978), too, are inappropriate in this new environment, where authorship seems to reside in two areas - both with the authors who produce an interactive work, and with the participants who are able to influence its development through their own decisions and agency. It is proposed, therefore, that attempting to control interactive contributions by imposing narrative structures onto them is an ineffectual strategy, which reduces the proper responsiveness of an interactive work.

This finding has important implications for inhabited TV, since it suggests that the strategy adopted by the production team - that

narrative had to be understood in structural terms if it was to be combined with interactivity - was misguided. Is it possible to discover alternative approaches that could replace this ineffectual strategy?

An approach that appears, at first sight, to be more promising is offered by post-structuralist concepts of narrative, which emphasise readership and the negotiated, provisional nature of narrative meanings (Barthes 1974, 1977b). Because it focuses on the activity of the reader, this understanding of narrative seems to be more valuable within the context of inhabited TV, and it is, indeed, asserted that examples of interactive practice - especially hypertexts - can be seen as the instantiation of post-structuralist theory (Landow 1992).

This approach addresses key features of inhabited TV - its accessibility and responsiveness to an audience; however, the implications of identifying inhabited TV with the 'writerly' text are considerable. In this view, the interactors' ability to incorporate, associate or generate material should be seen as the key benefit of the new medium, and unexpected readings and proliferating content should be understood as a necessary and welcome product of its incorporation of interactivity. Accordingly, attempts to control and limit this 'writerliness' are unnecessary and inappropriate - instead, interactors should be given free rein to contribute as they wish.

Yet this reading gives rise to a number of difficulties. In the first place, describing inhabited TV as an example of the 'writerly', open text fails to acknowledge the fact that exaggerated 'writerliness' can be detrimental. The negative effects of such 'writerliness' were clearly demonstrated in *Heaven and Hell - Live*, when the interactors generated a mass of unexpected contributions that overwhelmed the narrative and rendered it incomprehensible.

A second problem arises from the fact that identifying interactivity and 'writerliness' fails to acknowledge that 'reading' a text, however actively, is not the same as being able to intervene within a discourse in order to change it in meaningful ways, so that *interaction* and *interpretation* are conflated. This conflation is particularly unhelpful in the context of inhabited TV, since it was founded upon two interconnected, but distinct, reception positions - according to their needs and preferences at different times, audience members could choose either to log on to the internet site and become interactors, or to watch the content that had been generated as TV viewers. Yet these different reception positions are confused if interactive interventions and active viewing are both described in terms of the 'writerly', and as a result, one of the key aspects of the new medium cannot be addressed.

A further problem with approaches that describe interactivity as the instantiation of post-structuralist theory is that, in their emphasis on the 'open' text, they do not acknowledge that significant areas of interactive media (in particular, forms of computer games such as adventure and role-playing games) are strongly characterised by formal features. In these kinds of interactive media, participants are not permitted free access to the text, but are controlled with pre-determined narrative progressions and repetitive closures. Overstating the freedoms that are available to interactors is especially inappropriate in the context of *Out of This World*, which was dominated by prescribed activities and closed forms.

For these reasons, it is proposed that post-structuralist concepts of narrative are not able adequately to describe inhabited TV. An alternative approach is required: one that is able to describe the distinctive aesthetic to which interactivity gives rise, and simultaneously to recognise the development of formal narrative conventions within it.

Both of these aspects are acknowledged in a description of the aesthetic that has emerged within contemporary visual media (Darley 2000). This postmodern aesthetic is characterised by the 'hyperreal' (Baudrillard 1988a) and the superficial (Jameson 1991), and by private, ludic modes of reception (Darley 2000). At the same time, there is a

strong attachment to narrative, albeit in a distinctive new form: narrative is 'decentred' here - that is, it is displaced by an emphasis on 'surface-play' and the sensory, so that familiar narrative conventions (such as temporality, authorship, and closures) appear in attenuated, even vestigial, forms.

Darley develops this analysis in relation to computer games, where the decentring of narrative arises in response to an aesthetic of playfulness and 'vicarious kinaesthesia'; he thereby provides a valuable answer to the question 'In what ways are the operations of narrative and interactivity reconciled within interactive media?' Narrative and interactivity are able to co-exist in computer games because decentred narratives appear in discontinuous sections (or 'cut-scenes'), providing a framework that sets up, guides and closes the gameplay; between these sections, the interactors are able to play for as long as they wish. By this means, the development of interactivity is not restricted by the need to maintain narrative coherence; but, at the same time, the narrative framework ensures that the interactors' interventions do not undermine the text's coherence, since gamers have to act within certain specified norms and progress in accordance with the sequential 'cut-scenes'. In this way, the tensions between narrative clarity and interactive freedoms are resolved as the two modes are brought together in ways that are interdependent rather than conflicting.

It has been argued that the model of content development proposed for inhabited TV (Wyver 1996) presents significant similarities with this aesthetic. According to these proposals, inhabited TV would engender multiple, dispersed expressivity; proliferating contributions and a process of recirculation and re-presentation of material would give rise to a hyperproduction of content, while the interactors' engagement would be characterised by privatised, domestic modes of reception. Moreover, the new medium would develop a form of decentred narrative, for a narrative framework delivered via TV would have the role of guiding and supporting an on-line site; it would provide a context and motivation for interactors, supply beginnings, ends and points of punctuation, and open up intervals where interactivity could freely develop. Narrative would be of secondary importance in relation to the opportunities for interactivity that would be offered by the on-line site: authorship (defined here as a producer's control) would be displaced by the interactors' ability to generate content, while narrative sequences and closures would be less important than the development of interactive responses on-line.

Yet while there are parallels between inhabited TV and the form of narrative described as 'decentred', there are also significant differences. The key distinction arises from the kinds of interactivity that would develop in inhabited TV, for these are 'productive' (Ryan 2001) rather than 'kinaesthetic' (Darley 2000); they focused on expressivity and

communication - developing aural and visual sequences, discussing issues, asking and answering questions, and so on. For this reason, it has been suggested, the proposals for the new medium should be considered in relation to a new audience position (the 'diffused audience') that has emerged as viewers have become, with increasing flexibility, cultural producers (Abercrombie and Longhurst 1998). The key features of the diffused audience are that the audience is no longer construed as actively receptive (Fiske 1987), but as culturally productive (Finnegan 1989), and that audience positions have become linked with performance (Kershaw 1994); in consequence, the essential feature of the newly-constituted audience is that consumption and production, performance and spectating, have become inextricably interlinked.

It has been proposed that this description of contemporary audience responses can helpfully be extended in relation to interactive media, since interactors who become practised at using on-line media often become productively engaged, building websites, exchanging textual 'chat', or customising games; while computer gamers are able to be both performers and spectators - they can take part and 'perform' in a game by identifying with a character, or they can watch other players' 'performances' as they take their turn.

It is helpful to consider inhabited TV, too, in relation to the diffused audience, for the new medium's promise of 'genuine interactivity' was to be delivered by enabling television viewers to produce programme content, so that they would become both consumers and producers; moreover, they would be able to choose to take part within the on-line world and 'perform', or to sit back and watch the TV programme that had been created from their contributions. The interactors in inhabited TV were not, therefore, to be viewed as gamers, but as performers, producers and creative practitioners.

The preceding discussions have suggested that the key features of inhabited TV - its provision of a discontinuous narrative that frames interactivity, and of interchangeably productive/consuming audience positions - can be related to developments that are occurring elsewhere in contemporary media production and consumption. Yet this suggestion must be carefully qualified, for it is made in relation to the *concept* of inhabited TV - the ideas that were set out when the new form of iTV was first mooted (Wyver 1996). Could these aspects of the new medium be demonstrated in practice? In order to begin to address this question, the next section summarises the development of these projects, and the difficulties that they incurred.

5.3 Summary of analyses of practice

The three experiments in inhabited TV - *The Mirror* (1997), *Heaven and Hell* (1997) and *Out of This World* (1998) - were designed to put into practice the proposals for inhabited TV that had been outlined by Wyver (1996). In summary, the key ideas that the experiments tested were that a TV audience could be turned into a community of interactors through the development of associated web-sites and TV broadcasts. The main purpose of the web-site was to provide opportunities for interactors to communicate and contribute material on-line, while that of the associated TV programmes was to provide a narrative framework that supported and organised the web-site, and subsequently to broadcast a selection of the interactors' material.

A distinguishing feature of inhabited TV was the idea that interactivity should be allocated a position of central importance in relation to a TV broadcast: the on-line site was to be the driving force for the TV programme, rather than the other way round. Its producers claimed that, because of this focus on interactivity, inhabited TV would develop a more 'genuinely' interactive kind of TV than any other forms of iTV, which were dominated by opportunities for viewers to choose from a range of programming and to exercise control over when it might be seen, and by the commodification of content - pay-per-view, home-shopping and home-banking. They were particularly careful to distinguish inhabited TV from enhanced TV, which used TV and the

internet as separate, complementary adjuncts, augmenting TV with additional services and information, since this did not give viewers access to a programme in ways that enabled them to interact directly with its content.

The first of the experiments that was produced to explore these ideas in practice was *The Mirror*, a series of six on-line worlds that accompanied a six-part TV series (*The Net* BBC2 February - April 1997). *The Mirror* tested the idea that interactors would want to become involved in an interactive web-site that reflected TV content, and gave them opportunities to discuss ideas that had been introduced in the programmes, submit pieces of their own work, and play games on-line. This initial experiment gave rise to important lessons about the potential of the new medium. Firstly, it provided evidence of the enthusiasm of a section of the TV audience for taking part in an on-line site that allowed them to respond interactively to TV programming. Secondly, it demonstrated the popularity of scheduled on-line 'events' (such as debates, an art exhibition and regular 'parties'), and their usefulness for attracting a critical mass of participants and providing a focus for social interactions.

However, while *The Mirror* provided important insights into the new medium's prospects, it was limited by an important shortcoming: the TV programme and web-site were connected thematically and

through references ('links') that were made from one medium to another, but the interactors could not influence the broadcast content, so that the position of the web-site remained ancillary to the broadcast. This failing meant that, in a crucial way, *The Mirror* fell short of achieving the producers' ambitions for inhabited TV.

The production team attempted to address this shortcoming in the next experiment in inhabited TV - *Heaven and Hell - Live* (Channel 4, August 1997). The key intention in this project was to implement the ideas proposed for inhabited TV more fully by allowing interactors to contribute content to a TV programme, and, in order to achieve this goal, two sources - a conventional TV studio and a 3D on-line site - were combined into a hybrid medium that was broadcast in real-time on TV. This combination of TV and interactive content into one form allowed the most important aspects of the concept of inhabited TV to be developed in practice: watching the TV programme and interacting with it became interchangeable activities, and the interactors could freely access and influence the programme content.

However, integrating TV and the internet in this way introduced an additional problem: because the programme had to fit into a TV schedule that was subject to strict pre-planning, and where no concessions to the unplanned, improvisational nature of interactive contributions could be made, it had to be organised according to

careful time-frames. The programme was therefore structured with a narrative - the rescue of 'lost souls' from Purgatory - which was divided into short, time-based sections, each containing an interactive game or competition.

This aspect of the programme was seen as a way of developing one of the key insights that had been gained from *The Mirror* - that the introduction of time-based schedules into an interactive world could act to promote and organise interactivity. However, the development of this strategy gave rise to considerable problems in *Heaven and Hell - Live*. The critical issue for the interactors was the brevity of the time-scales. Because the content was so strictly scheduled, they were not able to take their time in exploring the virtual world or to play the games at their own pace; moreover, the complicated content was explained at great speed, and they had no time to practise their roles. As the result of these pressures, the interactors were not able to engage with the programme narrative, and they soon began to respond to it in increasingly haphazard and playful ways. A plethora of interventions and interjections ensued, and the carefully-planned programme material was at first subverted and disrupted, and then rejected by the interactors as they began to log-off. The consequence of these disruptions for the audience members who had chosen to watch the programme on TV, rather than interacting with it, was severe, for they caused the programme to descend into incomprehension.

The chief lesson that the producers took from this experiment was that it had introduced the interactors to complicated content with inadequate guidance; and that, moreover, the possibilities for confusion had been increased by the ability of interactors and viewers constantly to switch positions. The solution to these problems, they decided, was to develop programme content that was characterised by simplicity and structural clarity, and to remove opportunities for interchangeable interacting and viewing positions. These two guidelines - termed by the production team their 'design principles' (Benford et al 1999a) - directed the development of the following experiment in inhabited TV, *Out of This World* (ISEA, Manchester; August 1998).

The narrative of *Out of This World* was simpler and more closely structured than that of *Heaven and Hell - Live*. It was organised into five sections - beginning and end sequences and three interactive games - which were precisely timed so that the programme had an exact running time. Each section delivered one part of the narrative (a race to escape a doomed planet) and each was carefully started and closed; there was a defined closure, too, at the programme's end, when the planet was destroyed. The confusion that had been caused in *Heaven and Hell - Live* by the flexible viewing and interacting positions was removed, as the interactors and audience members were divided from one another so that the viewers could not interact with the programme.

Furthermore, the interactors' involvement was carefully restricted to specified activities - for example, jumping to catch fish or chasing frogs - and they lost the ability to control their avatars at certain points in the narrative when they were shepherded together by the programme software.

Following the performances of *Out of This World*, the production team concluded that the experiment had been, in the main, successful, and that their 'design principles' had proved effective in ensuring that its content was clearly comprehensible (Benford et al 1999a). The simple narrative framework had been easily followed by the audience, while the interactors' clearly-defined roles within limited, timed sections had meant that they were not able to disrupt the narrative's development. The structural 'design principles', they believed, had ensured that the problems of *Heaven and Hell - Live* had been resolved.

These positive conclusions are challenged in this thesis, for it is argued that close analysis of the feedback from the audience of *Out of This World* provides evidence of a number of significant problems. The audience complained about the structured approach to narrative, asserting that it resulted in 'very closed', 'simple', 'naive', and 'top-down' content. They disliked its derivative, game-show form, saying that it was 'too conventional'; moreover, they were dismayed by the

thematic focus on death. A further problem was the removal of opportunities to interact with programme material - 'why should an audience want to watch material generated from within an on-line world unless they have had a hand in creating it?' they asked. There were questions, too, about the quality of the visuals and audio, and - a related problem - the expressivity of the avatars.

Of all the issues that were raised by the audience, two were particularly intractable: the structured approach to narrative in the programme and the separation of the audience and interactors into separate 'layers' of reception.

The audience complaints about the approach to narrative focused on the production of overly-simplistic, uninteresting content and the perception that the emphasis on tightly controlled time-frames severely restricted the kinds of interactivity that were possible to the interactors. 'What about navigation? What about exploration? There's too much control', they complained; and 'It's a very closed form. There's no time to get involved'.

The second of their complaints - that opportunities for the audience to interact with programme content had been removed - also focused on the reduction of opportunities for interacting with the programme: they pointed out, with justification, that their reception position in

relation to *Out of This World* reinstated the reception model of conventional TV, and that the experiments had therefore 'betrayed' the idea of a form of television that was accessible to its audiences.

The validity of these complaints is substantiated by comparing them with the outcomes of earlier experiments that have explored the development of narrative within an interactive medium. *Habitat* (Morningstar and Farmer 1991) demonstrated the futility of attempting to structure an entire narrative and control its development, while the *OZ* project (Kelso, Weybrauch and Bates 1993) showed the problems that arise from an attempt to establish a viewing position in relation to an interactive medium. These earlier experiments support the key findings from *Out of This World*: that the structural approach to content development adopted by the production team was ineffective in resolving the chief problem encountered in *Heaven and Hell - Live* (the disruptive influence of interactivity within a time-based medium), and that the institution of a separate audience position in relation to an interactive medium was unsustainable.

In summary, none of the experiments was able to demonstrate successfully how inhabited TV might work in practice. *The Mirror* showed that a section of the TV audience was keen to respond interactively to a broadcast and the potential of scheduled on-line events for providing a focus for interactivity; yet it maintained a 'tele-

centric' focus and did not allow interactors to contribute directly to a TV programme. The production team attempted, in *Heaven and Hell - Live*, to overcome these shortcomings by producing an integrated TV/internet form; but the introduction of interactivity into a time-based medium meant that the programme's narrative content was severely disrupted by a mass of unexpected interventions. They tried to address this problem in *Out of This World* by controlling interactivity within a closely-structured narrative, but this led to the introduction of further difficulties - reductively simple content, restricted kinds of interactivity, and the removal of opportunities for the audience to interact with the programme. Despite the variety of approaches that were taken to combining narrative and interactivity, the experiments were not, therefore, able to demonstrate that the ideas proposed for inhabited TV were practicable. What reasons can be found for this failure?

5.4 Discussion of findings

While, in concept, the inhabited TV project seemed to offer a promising new way of enabling viewers to become interactors who could contribute content to a TV programme, the results of the practical experiments were not encouraging, for each failed to deliver an important aspect of the proposals: in *The Mirror*, viewers/interactors were not able to contribute in significant ways to the TV programmes; in *Heaven and Hell - Live*, the narrative was incoherent; and in *Out of This World*, the content was over-regimented and simplistic.

The strategy devised for accommodating interactivity within a TV programme had been to restrict the interactors' freedoms to interfere with the development of a programme by adopting a severely structured approach to content development. For the production team, this approach (the 'design principles') was successful; this was the key lesson that they drew about content production in the inhabited TV experiments, and the answer to the problem posed by the association of narrative and interactivity.

Yet that this conclusion cannot be upheld, since close analysis of the audience feedback to *Out of This World* shows that the 'design principles' caused the experiment to deviate in crucial ways from the original proposals for inhabited TV (Wyver 1996).

The first way in which the experiment failed to implement these ideas was in the model of content production that it implemented. It had been intended to create content from the 'bottom up' - that is, to develop it in response to interactors' contributions to the on-line site. In practice, however, content was delivered from the 'top down' - it was subject to strong authorship and control from the production team, who assumed responsibility for every aspect of content development.

This change to the original plan was made because the production team decided that interactors' responses had to be controlled within a tightly-structured, highly predictable, authored narrative. However, this approach to content production was profoundly difficult for the viewers, who complained that clarity had been achieved in the project at an unacceptable price: in their focus on the need to create clearly-structured content, the producers had failed to consider the viewers' needs for entertainment and involvement. The production team therefore stood accused of allowing a serious misjudgement to arise in their approach to content development: they had neglected to consider the 'needs and sensibilities of the audience',[101] and had assumed that structural clarity could be an adequate substitute for entertaining and interesting content.

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[101] These are the words of one of the viewers of *Out of This World*.

It is difficult to believe that experienced producers would have allowed a similar misjudgement to arise in the development of a conventional TV programme. Yet producing a traditional programme involves (more or less) established production methodologies and narrative conventions, whereas the producers of the inhabited TV experiments became absorbed by a central problem - how to combine television and interactivity effectively - that demanded entirely new approaches. Their preoccupation with this problem led them to focus on structural clarity, and to overlook - in a way that they would never have tolerated in conventional TV production - the 'needs and sensibilities' of their viewers.

The second way in which *Out of This World* deviated from the proposals for inhabited TV lay in the institution of separate reception positions for viewers and interactors. The producers attempted to justify this feature of the experiment on the grounds that it gave rise to more controllable interactivity, yet they were not able to defend the fact that, in dividing the viewers from the interactors, they had removed any chance of implementing one of the key ambitions for inhabited TV - enabling viewers to become interactors.

It was clear that the decision to remove this essential feature of the original concept arose as a consequence of the production team's overriding preoccupation with simplifying and controlling the

interactors' responses, so that interactivity could be introduced into a broadcast in a way that could not undermine it. However, in this respect - as in the institution of an authored production methodology - the 'design principles' were not beneficial, but severely detrimental to the audience's experience of the programme; the intention to clarify and simplify the interactors' and viewers' roles led to the removal of opportunities for the audience to become productive by interacting with programme content.

A third, crucial difference arose between the proposals that were made for inhabited TV and the attempt to realise them in practice. The proposals were founded on the idea that viewers/interactors would be able to draw on their own 'real-life' experiences in order to create programme content, and that they would be able to develop their responses within extended time-frames. However, these proposals were jettisoned as the production team decided to permit only physical, reactive responses to objects within the worlds, and to limit interactivity in *Out of This World* to short, truncated sections.

The development of this approach to interactivity in inhabited TV can be traced to *The Mirror*, which included a small number of physical activities, including a 'bouncy castle' and timed 'events'. While these kinds of activities were outweighed in *The Mirror* by an emphasis on 'chat' and communal activities, the preponderance of timed physical

activities was increased in *Heaven and Hell - Live*, and *Out of This World* was dominated by contests and physical activities - a game of football, competitions in which frogs were herded and fish were flipped, and the final race to escape from the planet.

These activities may have been fun for the interactors involved, but they were seen by *Out of This World*'s audience as a travesty of the expressive, communicative interactivity that they had been promised. The interactors were no longer allowed to draw upon their own experiences and real-life interests, to communicate with one another, and to see their contributions incorporated into a TV broadcast. No longer was the emphasis on 'productive' (Ryan 2001), 'conversational' (Jensen 1999) forms of interactivity, but the pattern of interactivity that was permitted in *Out of This World* was closer to a 'selective' (Ryan 2001), 'transmissional' mode (Jensen 1999): the interactors could only make simple choices between pre-determined positions, and had little influence over the programme content that was delivered to them.

In addition to this crucial deviation from the kind of interactive engagement that had been envisaged in the proposals for inhabited TV, there was a decisive move away from the original ambition to enable on-line communities of viewers/interactors to develop. A key part of Wyver's (1996) concept had been that, over time, individual members of the TV audience would be brought together in the on-line site to

form a community of interactors. Communication - between both viewers/interactors and, it is important to remember, members of the production team - would develop through the sharing of artefacts or information and conversations between the 'inhabitants', and would enable producers and viewers/interactors to correspond in ways hitherto impossible in TV production.

Yet in practice the communal aspect of inhabited TV was overlooked as the development of content in the experiments became increasingly focused on the responses of individual, isolated 'gamers' (as the interactors in inhabited TV increasingly became). *Out of This World* demonstrated this focus to the fullest extent. As I discovered when I took part as an interactor for one of the performances, awareness of a team was less important than controlling an avatar within the virtual world, discovering ways of moving quickly and adroitly through unfamiliar territory, and ultimately, staying 'alive'.

In these two ways - its emphasis on physical activities and on individual gamers - the inhabited TV project came to rely increasingly upon interactive practices which are characteristic of computer games. The implications of this development were very considerable, for it led to the diminishment of features that were, at the outset, seen as essential to inhabited TV: the development of game-play of a more conventional kind meant that the experiments could not, as had been

intended, focus on the interactors' expressivity or the development of community.

In important ways, therefore, *Out of This World* can be seen to deviate from the concept that was proposed in 'Audience Participation' (Wyver 1996). Content was generated in a structured, 'top-down' way; viewers were not able to become interactors; 'transmissional' rather than 'conversational', and 'selective' rather than 'productive' forms of interactivity were developed; and the interactors were conceived as individual gamers, rather than as community members. The effect of these deviations from the original ideas was acutely felt by the viewers, who were justified in complaining that the producers' focus on questions of form had led them to pay inadequate attention to an audience's requirements for entertainment and involvement. Why did the production team introduce strategies that led to the production of content that was deeply unsatisfactory for the viewers, and that caused the experiments to deviate so significantly from ideas that had, at the outset, been articulated with such conviction?

The answer to this question lies in their decision to integrate TV and the internet, for the development of the hybrid medium gave rise to a particularly problematic side-effect: there was a disparity between the flexible time-scales that were required for the development of interactive responses and the precise timings that were essential for a

TV broadcast. The 'design principles' were devised to alleviate this mis-match between the time-scales of the two media - by organising the interactive responses within a tight narrative structure, it was hoped that the activities on the on-line site could be time-controlled so that they would fit into the TV broadcast.

The decision to integrate TV and the internet was taken because the producers thought that integrating the two media was the most logical and effective way of allowing interactors to gain unrestricted access to a TV programme. However, it was entirely counter-productive, for the tensions that arose from the introduction of interactivity into a strictly time-based medium led to the development of policies for controlling the interactors' responses; and a paradox thereby arose, whereby the integration of TV and the internet did not enable interactors freely to access a TV broadcast, but led to the precise opposite - the severe restriction of the kinds of interactivity that were permitted. The integration of TV and the internet can be seen, therefore, as founded on a logical fallacy: the belief that integrating the two media would inevitably allow viewers/interactors to access a TV broadcast more readily.

Yet in their preoccupation with devising this strategy of integrating interactivity and TV, the producers were distracted from an earlier recognition. In the initial proposals for inhabited TV, integrating TV

and the internet was not seen as a requirement for enabling viewers/interactors to become productive: on the contrary, the description that Wyver gave in 'Audience Participation' (1996) depended upon the production of content by means of a *separate* broadcast and internet site.

In order to clarify this point, it is helpful to recall the model that he proposed. Wyver describes a combination of TV programme and on-line site in which each had a distinct role to play in the development of content. However, while separate, the two media were interdependent in a way that defined the inhabited TV model: the key technique for organising the website would be references (or, to use a term from television, 'links') that would be delivered by TV presenter/s or performer/s, and that would be responsible for beginning, developing and ending the on-line activities. The broadcast links would initiate the (inter)activities by providing background information, setting up the scenario, and informing the interactors about ways in which they could become involved. As time went on, the TV programmes would continue to refer to the website, giving information about new activities and events that were about to take place on-line, guiding interactors' involvement, and reporting back on their progress. Finally, when the TV series and internet site were to be brought to an end, the closure would be directed and explained with the help of information

delivered in a broadcast. Throughout the TV series, the broadcasts would, in addition, display a selection of the interactors' contributions that had been re-edited for TV. In the proposals for inhabited TV, therefore, the new medium was to be distinguished by a linked, bi-media approach to content development, and by the subsidiary role of the TV broadcast, whose purpose was largely to organise and support the website.

Of all the inhabited TV experiments, *The Net/Mirror* (1997) followed this bi-media approach to content development most closely. Here, links that were presented in *The Net* (the TV series) were instrumental in initiating the activity in *The Mirror's* on-line worlds and encouraging viewers to take part as interactors; they were subsequently responsible for explaining and promoting the successive activities on-line (the debate, exhibition, and games); finally, they had the role of drawing the project to a close with the announcement of the 'end of the world party'. This approach meant that the broadcast served to provide organisational clarity for the on-line site, to motivate and contextualise the interactors' involvement with the project; at the same time, *The Net/Mirror* avoided the central difficulty that undermined the following experiments - the introduction of interactivity into a time-based environment - since the on-line site was separate from the broadcast, and could therefore develop in accordance with more flexible, expansive time-frames. As the positive feedback from *The*

Mirror's 'inhabitants' indicated, this model was highly successful in developing and holding their attention and, consequently, in beginning to develop a sense of community (Walker 1997).

Despite these successes, the production team felt that it was necessary to move away from this model because *The Mirror* was subject to a crucially important shortcoming: it did not allow interactors to contribute to the TV programmes to a substantial degree, but developed the on-line sites as adjuncts to a TV series that was already established. The idea of integrating a TV programme and web-site in order to permit interactors full access to a broadcast arose as a way of remedying this shortcoming, and so a fundamental deviation from the original plan for inhabited TV was introduced.

However, the producers could have addressed *The Mirror*'s failing differently: they could have developed a version that placed the internet site at the centre of content production, replacing the *Garden Show* theme (Wyver 1996) with *The Net/Mirror*'s thematic focus on new media and technologies.

Developing *The Net/Mirror* in this way would have had major implications for the implementation of inhabited TV in practice. If TV and the internet were no longer integrated, the requirement to accommodate interactivity within the restricted time-frames of TV

would be removed, and the 'design principles' would not be necessary. As a result, the time at the interactors' disposal would become open-ended and elastic, and the conditions necessary for the development of 'conversational' (Jensen 1999), 'productive' (Ryan 2001) forms of interactivity would be reinstated. In short, through the rejection of the integrated web/TV model of inhabited TV and the reinstatement of the original model of bi-media content production, it would become once again possible for a more interactive form of TV to develop.

However, this proposal appears to introduce a problem. Returning to a model of inhabited TV that depends upon separate, interdependent broadcasts and web-sites seems to affiliate the project with the 'multi-platform' delivery that characterises programmes such as *Big Brother*. Yet inhabited TV was, at the outset, defined in opposition to this kind of delivery (Wyver 1996).

This apparent similarity between enhanced TV and the original proposals for inhabited TV is only superficial, though, for they are strongly distinguished by different methods of content production. As established earlier, content is generated in enhanced TV according to a markedly 'top-down', producer-led methodology, and the internet is used as an adjunct to a TV broadcast; consequently, interactors are not able to contribute in any significant way to the development of programme content. In the proposals for inhabited TV, in contrast,

content was to be generated in a 'bottom-up', interactor-led way, while the TV programme would have a secondary role of supporting and framing the interactors' contributions. The focus of activity would be on the viewers'/interactors' participation in a web-site, and a far greater degree of interactivity would be available - interactors could act 'conversationally' and generate material for inclusion in the TV programme.

There is a further important difference between enhanced and inhabited TV. While enhanced TV maintains the conventional relationship of TV viewers in relation to a broadcast, there is no place for a separate audience in relation to inhabited TV: as the viewers' unhappiness about their inability to interact with *Out of This World* indicated, this was a characteristically 'first-person' medium, in which audience members could be no more than by-standers, observers of a world whose inner logic was impenetrable to them. The producers' decision to separate the viewers and interactors can be seen, therefore, as mis-guided; in this respect, too, there should be a return to the original ideas for inhabited TV, and their proposal that viewing and interacting should be interchangeable - that viewers could, at different times, log-on to an on-line site, thereby becoming interactors, and subsequently watch the content that they had helped to create, as conventional TV viewers.

There are, then, two conclusions to be drawn from the inhabited TV experiments. In the first place, conceiving narrative as an encompassing structure that serves to control interactors' interventions in a text leads to the production of impoverished content and restricted interactivity. Secondly, it is not possible to develop a separate 'viewing' position in relation to an interactive medium such as inhabited TV. In both respects, the structural 'design principles' implemented by inhabited TV's producers were founded on important misapprehensions.

The resolution of these difficulties lies in a return to Wyver's (1996) proposals, in which narrative was understood as a framing device that opens up intervals where unrestricted interactivity could develop, and in which TV and the internet were not conceived as a hybrid 'webvision', but as separate, interdependent media. Furthermore, the ability of viewers to become interactors should be reinstated, so that 'productive', 'conversational' forms of interactivity were restored. The validity of these proposals has not been tested to date because the practical experiments deviated so far from them, so that there is strong reason to re-visit them in the future in order to carry out practical work that would more effectively explore their distinctive approach to reconciling interactivity and narrative, and to turning viewers into communities of interactors.

If a further experiment in inhabited TV was developed in the light of these conclusions, the internet and TV would be separate but interdependent media, linked together by commonalities of theme and presentation and by references within the broadcast that guided the development of on-line material. There would be no audience position in relation to the on-line site, but viewers would be able to 'log on' and become interactors as they saw fit; they would also be able, subsequently, to view a broadcast version of the contributions that they had made on-line, edited together with other interactors' inputs.

What are the implications of these conclusions for theory? In the first place, they lend support to criticisms of structuralist approaches to narrative. It has been argued within the thesis that the shortcomings of these approaches can be perceived with particular clarity in relation to the interactive aesthetic, and they were clearly demonstrated in *Out of This World*, where the decision to contain interactive responses within a closely structured narrative was found to lead to the impoverishment of content and severely restricted forms of interactivity.

It is scarcely surprising that this methodology for content production should have caused such difficulties, since the production team's preoccupation with programme structures, temporal organisation, and authorial control evoked the concerns expressed in narratology for the closed, determined work. The 'design principles'

gave rise to a dominating authorship that fixed the narrative and the rules of the games, limiting the interactors' participation to a set of simple activities; the flexible time-scales that characterise the interactive aesthetic were replaced by strict temporal sequencing - the games were given precise running-times and the whole programme was designed to deliver the exact timings that were required by a TV schedule; adherence to these time-frames was ensured by repetitive patterns of closure - each game was formally closed from the next one and the narrative was relentlessly goal-orientated. The producers' preoccupation with devising a tight narrative structure led to precisely the shortcoming of which narratological approaches stand accused - a neglect of the readers/viewers, so that the experiments' outcomes are exemplary of the problems that arise as a consequence of restrictive, structural approaches to narrative.

The experiments also lend support to criticisms of post-structuralist approaches to interactive media. A key issue here is the tendency to over-emphasise the freedoms that are associated with interactivity, and *Heaven and Hell - Live* demonstrated clearly the dangers of over-stating the benefits of interactors' freedoms to intervene in a text, and neglecting the possibility that these interventions might lead to chaotic and incomprehensible content. At the same time, the experiments provided evidence of the enduring need for narrative conventions; although the producers over-responded to the requirement for

narrative form in *Out of This World*, the chaotic outcomes of *Heaven and Hell - Live* showed that a clear narrative framework is nevertheless important to guide the interactor's involvement.

This dual requirement - for narrative form, as well as for openness to interactors' interventions - was central to the concept of inhabited TV, yet it is not fully addressed by concepts of narrative that focus on readership. While these approaches permit key aspects to be addressed - the importance of readers'/ interactors' activity in mobilising the text and the negotiated, provisional nature of meanings produced - the evidence of the experiments warns against mapping them too closely onto the new media, and suggests that they should be augmented by awareness of narrative conventions that also emerge within this new environment.

The inhabited TV experiments have implications, then, for both structuralist and post-structuralist approaches to narrative, for while they provide evidence of the inadequacy of structuralist approaches that elevate narrative form and neglect readership, they also demonstrate the limitations of post-structuralist approaches that emphasise the readers'/interactors' activity at the expense of recognising the persistence of formal features in interactive media. An alternative approach is therefore required: one that acknowledges the new medium's development of an interactive aesthetic *and* its reliance

on formal narrative features; or, in other words, its 'force' as well as its 'form' (Ryan 1999).

It has been argued that this requirement is met by describing inhabited TV as a form of decentred narrative, which permits its dual focus on interactivity and narrative to be addressed. This proposal demonstrates the usefulness and robustness of Darley's (2000) description of the new media aesthetic; yet it has been accompanied by a warning. While Wyver's (1996) proposals for inhabited TV detail a relationship between narrative and interactivity that can be described as 'decentred', the experiments did not adhere to this pattern, but moved increasingly towards a model in which narrative was decidedly 'centred'. In consequence, a key aspect of his original ideas was not tested in practice, and the requirement therefore remains for future experiments which, remaining more faithful to the proposals, could evaluate the potential of decentred narratives within this new environment. Nevertheless, despite the experiments' failure to demonstrate the initial proposals, some tentative suggestions may be made about the implications of the inhabited TV project for understanding narrative as decentred.

In the first place, the project demonstrated (not by virtue of its successful outcomes, but through its problems) the value of a key perception of Darley's work - the recognition that narrative and

interactivity are successfully reconciled because they are used as separate, albeit interdependent, elements.

Furthermore, the proposals for inhabited TV indicate ways in which the aesthetic that gives rise to decentred narratives might be varied, for the new medium exhibits this decentring in distinctive ways. While computer games provide both narrative framework and interactive intervals via a single medium (usually CD-ROM), in inhabited TV the delivery is bi-media - the narrative framework is provided by a TV broadcast, while the interactivity takes place on-line. Yet (as is argued above) this superficial difference should not obscure the emergence of a version of decentred narrative in inhabited TV.

A further distinction arises because the forms of interactivity envisaged for inhabited TV were quite different from those that prevail in computer games. While gaming is characterised by vicarious kinaesthesia and physical involvement with a virtual world, the forms of interactivity proposed for inhabited TV focused on expressivity and communication - developing visual and aural sequences, discussing issues, asking and answering questions, and so on; the interactors, in this description, were not seen as gamers, but as 'producers' and 'creative practitioners'. Inhabited TV would not, therefore, share the aesthetic of surface-play and superficiality that is characteristically associated with computer games, but would produce programme

material that had significance and depth for its contributors/viewers, drawing on their 'real-life' ideas, interests, and experiences.

There is a further distinction between inhabited TV and the aesthetic that prevails elsewhere in contemporary visual media: while the intention was to turn TV viewers into communities of interactors (Wyver 1996, 33), Darley (2000, 180) describes the elevation of a private mode in which viewers or interactors are placed in increasingly isolated positions.

Because of these differences, if future experiments in inhabited TV were undertaken, they would produce a variant on the decentred narrative form that is found in computer games; in this version, narrative would serve to frame interactive intervals that were quite distinctive - not characterised by kinaesthetic gameplay, but by productive, collective interactivity.

Intriguing as it is, this suggestion must be approached with caution, for in considering the impact of possible future experiments in inhabited TV on existing forms of decentred narrative, this discussion has moved away from the analysis of actual experimental outcomes to hypothetical proposals. It is, therefore, in danger of falling foul of the warning issued at the start of this research about unsubstantiated claims for interactive media; in order to develop an investigation into the

impact of incorporating decentred narratives with the productive interactivity that was proposed for inhabited TV, further experimentation is required.

The productive responses that characterise inhabited TV have been considered in the thesis in relation to the diffused audience (Abercrombie and Longhurst 1998), which is not only interpretatively active (Fiske 1987), but which can also be productive in a practical or material sense (Finnegan 1989). It has been proposed that it is possible to extend this description of contemporary audience responses to include inhabited TV because the forms of amateur productivity involved in the diffused audience (such as amateur music making) can be compared with the kinds of creativity engendered by inhabited TV's productive interactivity (for example, the development of video, sound and textual sequences; activities hinted at by *The Mirror's* amateur picture-making and portraits).

Considering inhabited TV in relation to the diffused audience is valuable because it permits its flexibly productive/receptive positions to be situated within a broad context of developing responses to the media. Similarly, relating the new medium to new, decentred forms of narrative that are emerging elsewhere in visual media provides a wider perspective on its approach to content development. Taken together, therefore, these discussions of inhabited TV enable its defining features (its emphasis on

interlinked production and consumption, and its combination of narrative and interactivity) to be situated within a context of contemporary developments in media production and consumption. The effect of this contextualisation is to enable the proposed medium to be understood not merely as an idiosyncratic and isolated attempt at drawing together interactivity and televisual forms, but as reflecting developments within the broader media context; its proposals for new ways in which content could be consumed and produced are thereby substantiated, and their potential can be evaluated more positively.

These discussions of inhabited TV in terms of the diffused audience and decentred narratives demonstrate the value of drawing in a variety of analytical approaches in order to analyse and evaluate the new medium, as well as of grounding these discussions in practice; they thereby provide evidence of the benefits of an 'enriched' (Herman 1999) approach to the analysis of new forms of narrative. While attempts to describe narrative in this new environment in structuralist or post-structuralist terms have proved to be of limited value, a methodology that combines awareness of innovative characteristics of the interactive aesthetic with the continuing presence of narrative conventions, and that therefore allows for the disparate, even contradictory, characteristics of the new medium, has proved to be more valuable.

A key lesson can be drawn from this perception. The new media forms considered here have provided evidence of continuity *and* development within the cultural tradition. The emergence of familiar narrative features - closures, authorship, and temporal sequences - within interactive media can be seen to extend the cultural continuum; at the same time, the distinctive ways in which these features are manifested (in the attenuated, vestigial forms of decentred narratives) shows that narrative conventions are able to develop in response to a changing media environment. Inhabited TV - in its productive, collective kinds of interactivity and its bi-media delivery - shows how this new form of narrative can be varied, and thereby offers further evidence of the flexibility, as well as the persistence, of narrative conventions.

Yet it is essential to qualify this statement, for it is made, of necessity, in relation to examples of practice that were, at best, tentative and inconclusive. Like the preceding discussions of practice, therefore, these discussions of theory call for further experimentation in inhabited TV, so that the intriguing possibilities that can be discerned within the proposals for the new medium might be substantiated.

If such future experiments were to be undertaken, they would be able to engage with issues that were barely touched upon in the previous experiments. The most fundamental questions about the way in which inhabited TV might be developed in practice remain

unanswered: for example, if a television broadcast is to provide a narrative framework for activities that take place on-line, how might this framework be conceived? Should any instructions, guidelines or narrative 'backstory' be delivered by a presenter (as was the case in *The Net/Mirror*); or is it possible to develop a televisual version of computer games' 'cut-scenes'?

Core questions about the viewers/interactors must be addressed, too; most fundamentally, to what extent do they *want* to engage in producing on-line content that can be reversioned for TV? What kinds of contributions are they willing to make? Is it appropriate to develop the kinaesthetic kinds of interactivity that were increasingly included in the inhabited TV experiments, or should the on-line sites be reserved for 'conversational' and 'productive' forms of interactivity? Do interactors need training and/or guidance in production methodologies to enable them to contribute content, and how might such guidance be delivered? Is Wyver's assertion (1996, 34) that members of the public are more media-literate than is allowed for by TV producers accurate? What can be learnt from the interactive practices that are developing in relation to enhanced TV, and what can be added to the description of distinctions between inhabited and enhanced TV?

The development of on-line communities, a key part of the original proposals, was one of the most significant failures of the experiments,

and greater understanding of the possibilities of virtual communities is clearly in order here, particularly in the area of narrative production on-line, where comparatively little work has been done. What lessons for the development of narratives in inhabited TV can be learnt from other internet forms such as MUDs and MMORPGs,[102] in which a narrative is 'inhabited' and developed by groups of on-line interactors?

This last question raises the issue of the current state of knowledge about narrative within an interactive environment. There is much work to be done to increase our understanding of the operations of narrative here, and, as an accompaniment to this work, the requirement for a great deal more experimentation that can explore in practice the implications of proposals from theory. The appearance of familiar narrative conventions in this new environment will require particular attention. What positions will be assigned to authorship and closures as the new medium develops? What would be the effect of providing a single, authored conclusion (as was the case in the extant inhabited TV experiments) or could there be a variety of alternative endings? Could the experiments follow the pattern of televisual forms such as soaps by removing the necessity for definitive endings: would the interactors feel emancipated, or dissatisfied?

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[102] *Multi-User Domains/Dungeons* and *Massively Multiplayer Roleplaying Games*. See pages 28 and 218, above.

By engaging with questions such as these, future experiments would begin to illuminate a key issue: the ways in which narrative is extended in response to a developing media environment. This thesis, in examining the inhabited TV project, has begun an approach to this issue by uncovering evidence for the continuous diversification of narrative within a new media context; further experimentation and analysis is now required in order to build upon the insights that have arisen from this intriguing attempt to open up the spaces of TV to its viewers.

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3. Unpublished Papers (see Appendix).

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- - - Production Running Order for *Out of This World*. September 1998.

4. Interactive Works

Blade Runner	Westwood Studios, 1997
Civilization	Microprose, first version 1991
Doom	Id Software, first version 1993
Everquest	Sony Online Entertainment, 1999
Final Fantasy 10	Squaresoft, 2002
Grand Theft Auto: Vice City	Rockstar Games, 2003
Half-Life	Sierra, 1998
The 'In Memoriam' Web	Eastgate Systems, 1992
Monkey Island	LucasArts, first version 1992
Mortal Kombat	Virgin Interactive, first version 1995
Myst	Broderbund, 1993
Neverwinter Nights	Interplay, 2001
Quake	Id Software, first version 1996
Street Fighter	Capcom Entertainment, first version 1988
Super MarioBros	Nintendo, first version 1985
Ultima On-line	Origin, first version 1997
Zelda	Armageddon Games, first version 1987
Zool	Gremlin Graphics, 1992

APPENDIX

Unpublished Papers

Heaven and Hell – Live
John Wyver/May 25 1998

Heaven and Hell – Live was an hour-long broadcast on the United Kingdom's Channel Four Television at 00.50 on the morning of Tuesday August 19. The programme – a research collaboration between British Telecom, Sony, Channel Four Television and Illuminations – was transmitted live from within a three-dimensional shared social space, and is believed to be the first such broadcast.

The programme mixed video feeds from six "cameras" inside a virtual space which was a schematic and humorous representation of heaven, hell and purgatory. The worlds had been created in VRML 2.0 and operated with Sony's Community Space server software. In addition the broadcast used three video feeds from cameras showing the host and contestants in the (real-world) studio, together with audio feeds from the virtual world, from the host and contestants, and from three correspondents who served as virtual camera operators.

Most television viewers watched the show as a conventional broadcast experience, whilst a number contributed thoughts and ideas to a chat channel and a forum on the Channel Four Web site. In addition, a limited number of users (who had pre-registered and been mailed a CD-ROM containing the graphics of the space and the necessary Web browser) entered the space across the Internet, were represented there as customisable avatars and participated in the events of the broadcast. As such, **Heaven and Hell – Live** was a demonstration – technically successful although conceptually achieving rather more mixed results – of "inhabited television".

Conceived as a game-show, with Craig Charles as the host and Katie Puckrik and Malcolm Jeffries as contestants, **Heaven and Hell – Live** was part of Channel Four's Renegade TV season and, according to BARB figures, attracted some 200,000 viewers despite the late hour. Up to 135 people – the participants – joined the space across the Internet at any one time, accessing the world with Sony's Community Space browser. As avatars – "the lost souls" – they could move around within the world, take part in the activities and communicate with other avatars in a text-based system.

Technically, the project – which was truly experimental – was remarkably robust and stable. The six PCs creating the camera views were on occasion's unpredictable, especially in supplying consistent audio, and several needed to be re-booted during the broadcast. But these problems did not show up on screen and the show remained on the air for its full length. This in itself was a not inconsiderable achievement.

As television, it was – in prospect – visionary and – in realism – intriguing and exceptionally unconventional. But most of those who watched it in a linear fashion on the television screen found that it was chaotic and lacked true coherence and or of the expected entertainment values of conventional game shows. For many, it was simply confusing. What coherence it was able to achieve came from the host and the two contestants who mostly with the use of

audio but on occasions in picture as well, created the forward drive of the television event. This was definitely advantageous for the television experience, although it also tended to work against the collaborative and participatory nature of the Internet experience.

Heaven and Hell – Live developed from the earlier collaboration between three of the partners – British Telecom, Sony and Illuminations – on **The Mirror**, six interlinked shared social spaces created with BBC Television. These ran on the Web for seven weeks in January and February 1997 alongside the Illuminations-produced magazine series about digital culture, The Net.

Both projects have contributed to an understanding of the combination and, at times, the clash between the imperatives of television and the expectations of Internet media such as chat rooms and shared spaces. This understanding is instructive for the future of inhabited television and other forms of convergent media.

The more detailed comments which follow have for structural clarity been somewhat artificially divided between "The Broadcast" and "The World". These components are, of course, integrally related at every level.

THE BROADCAST

Format

Heaven and Hell – Live took the form of a game show because it was hoped that as a popular and familiar television form it would provide at least the outline of an immediately comprehensible structure for both the Web participants and the television audience. The format, however, was resisted by those who felt it inappropriate for a shared space experience which, it was argued, should be more distributed than a game show's strongly focused and linear structure.

As a game show, **Heaven and Hell – Live** incorporated four sections, each a self-contained game – plus an introductory sequence. The first game was a treasure hunt, in which the contestants were given clues by the host. It was intended that the participants should help the two contestants solve the clues, and that the answers would lead them to locations at which sections of a virtual skeleton could be found. The aim was to assemble the skeleton within the allocated time of three minutes.

Game two was an attempt in heaven at the "physical" stacking of avatars, placing them one on top of the other in the virtual space in towers of three, four or more. The third activity was a pursuit quiz in purgatory in which the contestants' avatars could move around a circle of gravestones by answering questions. The aim was for one of the avatars to catch the other, again in an allocated three minutes. And the final game too place in hell, where the contestants had to gamble numbers of souls gathered from the previous games against the random opening of a pod. The treasure hunt, the pursuit quiz and the pod gambling all demonstrated certain achieved elements, although none was wholly successful, but the avatar stacking simply did not work at any level.

Problems with the games were caused by the limitations of the aura system (see below) and the differences in communication between the Internet and television (again, below). It was also the case that far more time for practice and rehearsal within the worlds, and more guidance for the participants, would both have been immensely beneficial and would have helped the games run more smoothly.

Partly because of the lack of rehearsal, the scoring and the application of rules were also erratic, which contributed to an anarchic quality at odds with the expected discipline of a game show. It became clear that the participants - and the producers – did not care about the scoring, and this feeling was quickly shared by the audience. Overall, it must be acknowledged that the game show endeavoured to encompass too many activities, and to make each of them too complex. Nor were the rules explained with sufficient clarity and detail. The conclusion must be that it would have been better to have used a significantly simpler, or indeed an alternative, format.

Alternative Formats

Alternatives to the game show form were considered, the most carefully considered of which was the sports event model. This imagined that a broadcast could cover events in a shared space in a manner similar to the way television constructs, say, an athletics meeting. In such a programme spatially distributed events are visited for brief periods when scheduled and choreographed events (such as a race or discus throwing) are taking place. Activities continue in different areas around this schedule, and an overall narrative or structure is looser than in a game show. Shared spaces, however, cannot at present impart to the viewer anything close to the experience of a sporting event, and it is also the case that an option such as this would have been more costly to implement than the one chosen.

Spatially distributed narratives were also considered, with constructed events taking place in different areas and with any individual viewer constructing his or her own story-line by the places which are visited. Real-world equivalents of such narratives have been mounted, including the drama Tamara in which simultaneous events took place in rooms in a New York mansion and members of the audience were free to wander from place to place. Both such spatially distributed narratives and broadcasts built on to the sports event model hold interesting possibilities for inhabited television to explore in the future.

Host and Contestants

The host and both presenters contributed a great deal to establishing the coherence of the television broadcast, but their tone - upbeat, jokey, sometimes coarse – whilst appropriate for a late-night television game-show was regretted by some participants. Katie Puckrick was probably appreciated most by participants and viewers, demonstrating that her experience in radio was highly valuable. As the host Craig Charles was felt to have been too cynical and not sufficiently sympathetic to the audience. His jokes about anoraks were not appreciated.

There was criticism about the lack of connection between the personalities and the avatars which supposedly represented them in the world. This was compounded by the choice to allocate the "female" contestant atavar to Malcolm Jeffries and the "male" one to Katie Puckrick. The producers believed this to be a valid and interesting reflection on gender identity in network systems, but it was seen simply as one further unproductive confusion.

One question raised later was whether in the television broadcast there should have had a host outside of the world – like a wizard or a "god" – who would have been able to explain the events more clearly and also comment on what was happening.

Interaction

Heaven and Hell – Live was most exciting for both participants and viewers when there was genuine interaction between the contestants in the studio and those participants – the lost souls. This happened on occasion, most especially during the quiz game when Katie Puckrick was able to request – and receive- help from a number of lost souls. True interaction of this kind – the help from a number of lost souls. True interaction of this kind – the fundamental rationale for work on the media form of inhabited television – was rare but when it did work, it was compelling – as was the moment on the screen when an avatar could be seen to "say": "Hey I've just seen myself on TV".

The interaction was difficult, partly because of the different communication modes in operation: the contestants were mostly working in audio (fast, indeed almost immediate and broadband) whilst the lost souls were struggling with text (slower, with a lag which was significant, and very limited in bandwidth). There was also the problem that the lost souls (and indeed some of our operators) had not had nearly enough time – never mind any assistance – to familiarise themselves with the browser and the world. This lack of time also meant that the lost souls had not had any opportunity to develop a sense of community or collective identity, or a feeling of ownership and investment, all of which was achieved with **The Mirror.** Each of these points is returned to below.

Speed

Although at times the broadcast programme felt fast and certainly frenetic, as a whole it was comparatively slow in conventional television terms. The difference between this speed of the television and the speed of the online experience, a difference that felt like two orders of magnitude, was a fundamental problem. Moreover, because of expectations formed by games such as Doom and Quake, those participants online expected both an instant response in the world and an immediate recognition of this on the television screen.

Social spaces, most especially ones of the complexity of **Heaven and Hell – Live,** with more than one hundred participants and running so that it could be received on domestic equipment, cannot emulate the speed of computer games, and indeed do not need to do so. The sense of social engagement and participation usually more than compensates for any perceived deficiency in

speed. As with other factors, more care is needed here in the management in advance of user expectations.

Camera Operators

Three camera operators also served as correspondents within the world, offering audio reflections in conversation with the host. Although al three performed well it was clear that they needed far more training and induction in the world. Also, if resources permit, it would be far better if the two roles could be separated.

For viewers, there was the difficulty of making sense of which elements were being dealt with by any specific shot, and consequently there was little sense of which correspondent's view was being shown at which point. Whilst the correspondents were broadly perceived as a good idea, they should have been more integrated, and introduced earlier to the audience, with a clearer explanation of their functioning and role.

Only in part because of their lack of practice, the operators found it hard to follow specific characters with their cameras. Aura difficulties contributed to this, but a path for further research is the possibility of tying the virtual cameras to characters, so as to facilitate such tracking. It was also important for there to be fixed viewpoints to which the operators could return, and it was felt that these could have been used more.

Communication

While the host, contestants and correspondents had audio communication in the television domain, the other participants in the world could only communicate with typing text into a chat box in the browser. This text also appeared above the heads of the avatars, which was simply confusing on the television screen. A précis of the words of the hosts and others was typed into the world, but this was at best only a partially successful compromise and it would have been far better to have had audio streamed into the world. Against this, however, many of the more than one hundred users appear to have arranged configurations in which they were able both to sit at their PC monitors to participate and simultaneously view events on the television screen. Nonetheless, the differences in the communication forms contributed to the difficulties caused by the relative speeds of the world, as there was a significant disjunction between the two.

Explanation

It is undoubtedly the case that the overall sense of what was happening, together with the rules for the individual games, should have been explained far more fully. The pace of explanation, which was quite full at the start of the programme, could have been slower, with more concentration on what was to happen. More sectioning and sign-posting would have been helpful throughout, with on-screen explanations throughout. Overall there should have been more guidance and far more preparation with the lost souls.

Governance

The issue of having some limited control over what was "said" by the lost souls in the virtual world – and as a consequence, potentially on live television – was of considerable importance to Channel Four. Their licence charges them with a number of specific obligations with regard to taste and decency, and also specific legal imperatives such as the ability to prevent incitement to racial hatred.

Channel Four's own comparatively liberal approach to issues of language, combined with the very late hour and the context of the Renegade TV season (three three-hour blocks of programming about issues of technology, rebellion and difference) ensured that the broadcaster adopted a relatively relaxed attitude. As a point of comparison, and given governance discussions hell with the BBC on **The Mirror,** where the caution was greater even though no events in **The Mirror** were intended for live transmission, our feeling is that in the current climate **Heaven and Hell – Live** would not be possible as a collaboration with the BBC.

All those who pre-registered for the CD-ROM with graphics and browser had to submit their email address, and tying this to the entry point for users meant that individuals persistently demonstrating anti-social behaviour could be bounced out of the space and denied re-entry. This provision, combined with a commitment by a Channel Four lawyer to monitor the chat going through the space, reassured the broadcaster. In the event only one individual needed to be denied re-entry. The lawyer, however, failed to spot a number of insulting remarks directed at Katie Puckrick made on the television screen by one avatar, and this individual remained in the space throughout.

In future variants it may be that the lawyer should just monitor the television broadcast, rather than attempt to review the mass of open chat which passes through the system, even in the limited space of one hour.

Feedback

As noted above, an e-mail facility and a forum were hosted on the Channel Four web site and advertised during the show on screen. The submissions were monitored by a person in the studio who selected comments and, at the invitation of the host, read these into an audio channel in the broadcast. This was a useful facility and generated a great deal of traffic, a good deal of it expressing frustration about not being able to enter the space at this stage. The comments also enabled us to understand better than we might how the audience was responding and reacting to the broadcast.

The Audience

The key failure of **Heaven and Hell – Live**, and the most obvious difference between it and **The Mirror,** was its failure, in advance of the broadcast, to build and develop a community. The production schedule was such that most users only received their CD-ROM two or three days before the broadcast.

There was no time to build a sense of community within the space, to collaborate with the users in any way, and to explain the conception of the

project and its aims. Nor did any effort go into rehearsing or in other ways developing the group of lost souls. The production simply assumed that they would perform on cue – and that they would conform to the script and schedule pre-arranged by the producers. Far too much was expected from them, and far too little in the way of information and explanation was provided to them.

Both the spatial and social logic of **Heaven and Hell – Live** were unclear, and there was simply no time for users, including those in the studio who had the benefit of some limited rehearsal, to understand it. Both needed bar stronger sign-posting.

The levels of support expectation also caused many frustrations, which were not handled well either in advance or during the broadcast. There was insufficient assistance available for those who had difficulties installing the browser before the broadcast, and during it many viewers happening across it on screen believed that by going to the Channel Four Web pages they could immediately access the world. It might have been better to have had a fuller Web site, perhaps with some kind of Shockwave game or other activity, was could have been at least a partial response to these demands.

Much more explanation was required at every level, and yet this had been provided in the booklet accompanying the CD-ROM and as a readme file, as an FAQ and on the Channel Four Web site. It is clear, however, that many users simply will not prepare with documents such as these, and expect the explanations to be contained within the space and also the broadcast.

In broader terms it is apparent that the ideal for such a project is to have a developing and evolving world from which a television broadcast emerges. In **Heaven and Hell – Live** a topdown system was imposed on a world which had no time to establish itself, with predictably problematic results, whereas it might be far better for television content – the outline of a show, the suggestions for games and rules – to be at least partly self-generated from within a pre-existing community.

THE WORLD

Concept

One concern, expressed at a stage when it was too late to alter, was about the use in a light-hearted fashion of religious ideas and imagery. Future variants of the project will employ references and metaphors in such a way as to avoid any potential difficulties. Otherwise the underlying structure and concepts of the three interlinked worlds were widely regarded as easily identifiable and understandable. Hell was the least successful environment as a social space, and it was almost impossible for users to have any sense of where they were in hell. Once comment about the worlds was that they could have been better designed to give users a stronger sense of the overall space.

Design

The design overall was much praised by users, who appreciated its organic and richly coloured feel. This was a very deliberate extension of the design

elements which had worked best in The Mirror – the playroom and the creation space – which had felt warm and welcoming.

The worlds and the avatars both went through a rigorous process during the production period of being stripped back in terms of size and complexity. Limitations here meant that there were few perhaps fewer landmarks and recognisable navigation points than might have been desirable. Beginnings, endings and boundaries could have been marked more clearly and the different areas for different activities could have been more clearly marked.

Nonetheless, the detail of the world and of the avatars was not featured sufficiently on television – in large part because the different technical standards between computer and television monitors meant that much of the detail was lost in the conversion from the digital environment to video. For the television experience alone the pace as a whole could probably have been significantly simpler, with perhaps just a single area.

Avatars

Again, the avatars were really impressive inside the world, and the extensive customisation possibilities (featured in one of the more didactic and indeed successful elements of the television broadcast) enhanced their strengths and pleasures. But the television images missed out on looking closely at the avatars, and given a demonstration of their (considerable) capabilities. Other comments received about the avatars included the feeling that they needed more detail in their faces, and that perhaps they could have had yet more clearly defined emoting processes.

A reflection indicated above is that the avatars for the host and the contestants should have perhaps have mirrored more closely their equivalents in the real world, although this would have been difficult because the designs were completed some weeks before actors for the main roles were secured. The gender switch between the avatars for Malcolm Jeffries (clearly a female in **Heaven and Hell**) and Katie Puckrick (very much a male) was confusing rather than – as had been hoped – provocative. The avatar for the host, Dante, was felt to be too limited, and to have had too limited a range of possible actions, especially as the television broadcast was focused on him for considerable periods of time.

A representation of the number of people in the world would have been greatly appreciated, either in terms of the overall total or segmented into the spaces in which a user was at that point. The lack of this, significantly compounded by the aura problems detailed below, meant that the world and the broadcast felt very under-populated, even empty. And this was a particular problem when the host was constantly stressing how many participants were joining the space across the Web.

Auras

Another key problem related to the ways in which Community Place works with the auras of the avatars. The numbers of other avatars which an avatar (including a virtual camera) can see is based on a complex algorithm which is

not simply a function of proximity. The most significant consequence of this was, as just noted, the world often simply looked empty. And so it was impossible, for example, for the contestants to find users to stack with – although this might have been alleviated had we fuller instructions been given in advance about precisely where we wanted the lost souls to be at specific times.

The aura problems gave rise to a number of complaints from viewers watching on computer screens and on television simultaneously who initially refused to believe that we were not faking the broadcast. They were getting such different views on the two screens that they could not marry them up and believe that both were simply different camera feeds from the same world.

Spatial Continuity

Connected with the aura difficulties is the problem of spatial continuity, and in particular the difficulty of the viewer making sense of the space of the world from just the broadcast screen: as one user subsequently commented, spatial orientation is so much easier when one is in control rather than when one is simply watching.

Browser

The speed of the browser software was constantly discussed, both during and after the broadcast. It was clear that some users were operating with the (ludicrous but nonetheless real) expectation that the system could match the pace and responsiveness of games like Doom. As with other matters above, the additional management of user expectations will be important for any similar project in the future.

There is always a trade-off between the detail and design of the world and these performance issues. Might it have been better if the worlds had been slimmed down and cut back even further than they were, so as to enhance performance more significantly.

The ambient sound was a compelling feature of **Heaven and Hell** as a world, just as it is with other shared spaces, but it was very poorly reflected in the television broadcast. In part this was because of numerous problems with keeping the ambient sounds operational on the PCs running the virtual cameras.

Finally, there is the whole nexus of concerns about the technical complexity of the set-up, which was of course considerable. Whilst specific technical issues are regarded as beyond the scope of these notes, it is perhaps worth noting issues to do with the latency between the servers and clients and of the placing of the servers on either side of the British Telecom firewall. It is also worth reflecting rather ruefully on the considerable differences exhibited between a number of exactly the same PCs used in the studio, even though all of these cam straight out of their manufacturer's boxes. Another issue for the future is at what level the specification for domestic users is set, and how this is balanced against performance and design issues.

THOUGHTS FOR THE FUTURE

These notes are intended to outline a range of specific technical and conceptual problems faced by **Heaven and Hell – Live**, and to suggest some areas for further research and improvement. Certain of these, including the use of audio rather than text communication within the world and enhanced aura management will be implemented in Out of this World, a further project with inhabited television. Out of this World is a collaboration between the University of Nottingham, Illuminations and British Telecom and will be staged as a performance event (with a "television" component restricted to a network inside a single building) alongside ISEA in September 1998.

More generally, it is important to regard combinations of broadcasting and the Internet and a new media form, which requires its own structures and personnel for production, and its own development related to but also at a slight distance from both broadcasting and the telecom industry.

Future applications are likely to find out whether the most receptive audience for such a new media form is kids, but uses for collaborative learning and for business can also be envisaged. As with so many new media developments, visionary as they may be, the bottom line will always be, is there a viable business model?

Out of this World
First Running Order

Warm-Up

House lights down
JohnW onto stage, lights up on him.
Performers onto stage; lights up on them.
Screen blank.

John W welcomes and explains (with hand mike?) what we are to see.
Stresses it is an experiment, and like all good experiments it can, and at times will fail. But it is the future of television.

Performers are donning HMDs

John W introduces Wobblespace and explains how it is played.

Lights on audience for WS up.
WS, with Pong overlaid on audience appears on screen.
Audience begin to play Pong; hopefully improving as they go.

John W encourages them, and then leaves to take up host position.

WS faded out.
Audience lights down
Cue opening titles

OUT OF THIS WORLD

Titles from Beta with music c. 25 sec

Cut to camera views of Start Arena.
Team leaders encourage introductions.

Host VO: You will be playing four games; explanatn of scoring

Teams are moved to exit line
of Start Arena

Teams are moved onto travelator.
Beta/Host on screen in world,
with option of full-screen projectn of
both.
c. 1 minute

Host VO: Explains the game of
spacefrog flipping

Arrival at Game 1 Arena

Host VO:

Game runs: frogflipping
Team leaders and participants
audio
c. 3 mins

Host VO: finishes game, and gives
the score

Teams are moved to exit,
and then on to travelator.

Host VO:

Beta/Host on screen in world,
with option of full-screen
projectn of both.
c. 1 minute

Host VO: Explains the game of
harvesting the hanging fish

Arrival at Game 2 Arena

Host VO:

Game runs: harvesting the
hanging fish
Team leaders and participants
audio
c. 3 mins

Host VO: finishes game, and gives the score

Teams are moved to exit,
and then on to travelator.

Host VO:

Beta/Host on screen in world,
with option of full-screen
projectn of both.
c. 1 minute

Host VO: Explains the quiz game, in which robots are asked questions about aliens, and robots of spacefrog flipping

Arrival at Game 3 Arena

Host VO:

Game runs: quiz
Team leaders and participants
audio
c. 3 mins

Host VO: finishes game, and gives the score

Teams are moved to exit,
and then on to travelator.

Host VO: introduces the space ship in the distance, and the race for space

Teams take part in the race
and come to the end.

Host VO: establishes the winners and moves them across the space ship

Winning team move across
to the space ship.

Host VO: explains that there is one chance for one of the losers

Losers moves across to WS triangles
Audience encouraged to pick up the booklets and to "vote" for their favoured loser.
Cheesy music from CD
Losers move up into space, winner into spaceship.

World blows up, space ship moves away.

End credits from Beta

House lights up